AMERICAN GAS ASSOCIATION MONTHLY

Vol. VI No. 4

APRIL, 1924

I BELIEVE in the gas industry. I believe that despite its age and the progress it has made, it has yet to enjoy its greatest period of usefulness. And I believe in the character, integrity, resourcefulness and efficiency of those who are directing the affairs of the industry.

ALEXANDER FORWARD

Special Notice

Beginning with the next issue, The Classified Directory—Manufacturers of Gas Equipment will be published separately from the Monthly. It will be the same size as the Monthly and will have the standard punching so that it can be bound with it if desired. In addition, the Directory will be enlarged and new features added, and we believe will be more convenient for reference and more useful to our members, each of whom will receive a copy of each edition as heretofore.

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FOR STATEMENTS AND OPINIONS CONTAINED IN PAPERS AND DISCUSSIONS APPEARING HEREIN, THE ASSOCIATION DOES NOT HOLD ITSELF RESPONSIBLE

AMERICAN GAS ASSOCIATION MONTHLY
342 MADISON AVENUE, NEW YORK, N. Y.
SUBSCRIPTION RATE *$3.00 PER YEAR*

Entered as Second Class Mail Matter at the Post Office at Brattleboro, Vermont, February 10th, 1922, under the Act of March 3, 1879.

American Gas Association Monthly

Vol. VI APRIL, 1924 No. 4

Building for Unseen Epitaphs

Epitaphs are generally not the pleasantest things to talk about. The thoughts aroused are not cheerful. But, like death, with which they are inseparably associated, they are inevitable.

They may take the form of the true definition of the word—an inscription or writing on a tomb or monument in memory of the dead—to be read by all, or they may be those unseen epitaphs written invisibly in the mind and memory.

These latter, to our mind, are the most important.

From the very fact that they are hidden, these invisible inscriptions will of necessity be more numerous and will be more searching in character. Therefore they should be given serious thought during life especially by every man in an industry as essential in its modern civilizing influences and as vital to community, state and nation, as the utility industry. And this serious consideration should all be toward building a solid and worthy foundation upon which these unseen epitaphs can rest—a foundation upon which it will be impossible to erect anything but a proud edifice worthy of the utility's place in the life of the country.

The time has passed when the utility man felt it necessary to slip quietly about, with apologetic air as though seeking to justify his existence. As a utility man he is an essential and vital element in the very life's blood of his community. And his neighbors all know it.

Standing foursquare as he does, it is his duty to make himself personally felt in the civic and other community life of his locality. He should be a vigorous and active supporter of every element of community endeavor that has as its goal the betterment of his neighbors' lives, his neighbors' business, his neighbors' social and economic existence.

It is in that way that he, while living, can best lay the foundations upon which unseen epitaphs, that any man might be proud of and that his industry merits, will be erected.

AMERICAN GAS ASSOCIATION MONTHLY

Vol. VI APRIL, 1924 No. 4

The Marvel That Is Coal

PROF. ALBERT E. WHITE, Director of Industrial Research, University of Michigan

A radio talk arranged by the Michigan Public Utility Information Bureau and delivered over station WCX, Detroit, Mich., Feb. 21, 1924.

DEEP IN THE hidden places of the earth, Mother Nature has buried a precious substance, within which she had concentrated many of the most important elements necessary for the continued existence of the human race. Not in gold or silver has she created her greatest masterpiece, but in black, coarse coal has she done her most marvelous work. For while gold has been chosen by men to be the medium of exchange, and silver has become very dear to us for the beautiful things which can be made with it, in coal has been stored up most of those elements which are important in our daily lives.

We have called coal the "Black Diamond," because its commonest substance is carbon and the precious diamond is also carbon. The rarer stone is always associated with a certain intimate event in our lives. But once that event has become history and we settle ourselves to the business of living happily ever afterward, then we take into our daily activities its brunette relation, coal, and use it every day and hour.

How Coal Is Wasted and How It Is Saved

The commonest and most wasteful use of coal is for heating homes. Coal burned in its raw state in domestic furnaces gives to the consumer only a very small portion of its compete value. Most of the important elements that chemists and scientists use are wasted in smoke and ashes. There is another chapter of the story that is more important.

The coal that finds its way into a gas plant is treated in a manner that gives a chance for real service. Gas coal is not burned. It is baked in air-tight ovens, called retorts, where the solid substance is broken down by heat and its various parts separated. From every ton of coal thus treated approximately 11,000 cubic feet of gas are obtained. This quantity of gas is sufficient to heat all of the water required for laundry and washing purposes and to do all of the cooking necessary for five ordinary families for one month. From this gas, before it is transmitted to private homes and industrial establishments, is extracted approxi-

mately 12 gallons of tar and 5 pounds of ammonia. The hundreds of products into which these substances are converted will be touched upon in a moment. In addition, about 1,300 pounds of coke are obtained and that is a satisfactory domestic fuel because of its cleanliness.

Ammonia Our Servant

We spoke of ammonia as one of the products of gas coal. It is treated for three important uses touching our everyday lives. First of all, it is the chief substance in the manufacture of ice. Every year more and more ice is made right in the cities where it is used, to preserve food. This ice is often better than natural ice, because the water from which it is made can be distilled.

Ammonia is well-known in every household as a cleaning agent. It is the wicked smelling liquid in the large flat bottle that turns up on the day the cleaning woman calls.

The third important use of ammonia is a fertilizer. It is made into a powder and, by enriching the earth and helping grow grains and vegetables, you all eat a little transformed coal with each meal.

There are other ammonia products that influence our daily lives. Chemicals made from this substance are used in the manufacture of the most delicate cold creams and other cosmetics. Manufacturers of woolen cloth use it to clean the raw wool when it is being prepared for the looms.

Coal Tar and Its Wonderful Family

Books have been written about the numerous applications of coal tar products. We all know about tar roofing and its waterproofing qualities. The old cedar paving blocks of our father's day have now been replaced with brick-shaped blocks which have been treated with creosote derived from coal tar. We find coal tar is one of the best of binders for macadam roads and it helps to preserve railroad ties and piles from the elements.

Germs hate coal tar and the creosote derivatives. Lysol makes them squirm and go to sleep. Lysol is a coal tar product, the most powerful of disinfectants.

Salversan, the great discovery of the last century in the treatment of blood diseases, comes from coal tar.

Aspirin, which is useful in fighting colds, as well as a dozen other products which our pharmacist keeps on his shelf, contain ingredients which are made from coal tar.

Still another fascinating chapter which science has written, using the black diamond as the subject, has to do with dyes made from coal tar. The next time you pass a gas plant, while you are wrinkling your nose at the heavy odor, think of the store windows filled with gayly colored spring and summer garments. They are beautified with coal tar dyes. Natural dyes are not capable of the variety and matchless beauty of the coal tar products. They all start from a single basic substance known as benzine. This is treated and combined with other chemicals and by an endless variety of combinations produces the shades and hues we see all about us on Easter Sunday.

Perfumes, too, come from coal. There is hardly a scented soap or toilet powder which is not a coal tar product. The most marvelous feature about these perfumes is that many of them when manufactured have the same chemical analysis as natural extracts.

Without these coal tar products our automobile tires would not be possible, for the agent used in the dissolving of the raw rubber is carbon bisulphate.

Coke Has Its Place Too

Coke, of which we stated 1300 pounds was produced per ton of coal treated in our by-product ovens, may not mean much to us until we think of the things which we would be deprived of without its use. Can we imagine going back to the days of the stage coach or to the days of the sailing vessel, or to a street or highway without an automobile? Yet, that would be our condition if we attempted to carry on our civilization without coke. The very basis of our steam rollers, our ocean greyhounds and our automobiles is iron and steel and for every pound of iron produced there has been demanded an equivalent pound of coke in the smelting operations.

Coal also contains explosive elements. One of the chemicals in gas is toluol, not very well-known until war comes when it is separated and made up into what we call T. N. T., or tri-nitro-toluol. Another content of gas, which has to be removed as far as possible because it clogs mains, is naphthalene. From this moth balls are made.

The carbon in coal, which contains so much heat, has many important uses. Carbon is needed in making dry batteries and carborundum products, such as emery wheels and sharpening stones.

The Conservation of Coal is Vital

Is it therefore an exaggeration to state that each day and hour we use and depend on some substance which nature has stored in coal? A cataloguing of all the materials it contains would require many hours, yet all these things appear in more or less of our daily life and new ones are constantly being discovered. Think of this the next time you handle a shovelful or read about the coal mining industry. You will have a clearer idea of how vital a question is the conservation of this precious though humble product of the earth.

A Comment on "The Fallacies of Depreciation Theories"

The following is a letter from Mr. Warren Stoutnour, Public Service Commissioner of the State of Utah, and Chairman of the Committee on Statistics and Accounts of Utility Companies of the National Association of Railway and Utilities Commissioners, commenting on the leading article in our February issue, "The Fallacies of Depreciation Theories as Applied to Public Utility Properties" by the late Robert A. Carter.

"This letter is to acknowledge receipt of Mr. Carter's address on the 'Fallacies of Depreciation.' I have not as yet had a chance to digest the address thoroughly; but thus far I find much in it to commend, and hope that it can be brought generally to the attention of the various commissions and their staffs. I particularly like the ideas expressed in the last two pages of the pamphlet.

"The first great task among the utilities is to agree among themselves upon a rational theory for depreciation. In our own case, I know that nearly every utility that has been before the Commission has advanced a different kind of theory for depreciation. I do not like the word depreciation, anyway. I think it should be expunged from utility lanuage."

Very truly yours,

(Signed) WARREN STOUTNOR.

Panama Canal Purchases 1000 Gas Stoves for Zone Employees

Will Install Them in Employees' Quarters for Cost of Removing Old Coal Stoves—Work of Piping Balboa Flats to Begin Tomorrow—Exhaustive Tests Prove Economy of Gas and Virtually Makes It Now the Canal Zone's Official Fuel.

CIRCULAR NO. 627-36, issued recently by the Panama Canal, contains the interesting announcement that they have purchased from the Panama-Colon Gas Company one thousand gas ranges, which will be installed in the quarters of any employee of the Panama Canal or Panama Railroad who desires to be relieved of the drudgery of coal and firewood, upon the payment of a small, nominal fee, to cover the cost of the removal of the old coal stove.

That this announcement will bring joy to both housewives as well as servants goes without saying, as they will now be able to avail themselves of a fuel which, because of its cleanliness and convenience, lends itself particularly to a tropical climate, where a cool, sanitary kitchen is most essential.

S. P. Vecker, vice-president of the Panama-Colon Gas Company, when interviewed regarding Circular No. 627-36 stated that sufficient 6-inch cast iron pipe had been purchased from the Panama Canal to permit the construction gangs to begin work immediately on the installation of the gas mains, and that orders for additional pipe, fittings and kindred accessories had been placed by cable. The company now has a gang of men staking out their proposed gas lines, and the installation of gas mains will begin on Balboa road at that point where the company's 6-inch line branches off to Quarry Heights Military Reservation. In order that the entire work may be carried out within the shortest possible time, the company proposes to put several hundred men to work in making the necessary installations, and as is the usual practice of the company, preference in both skilled and unskilled labor will be given to Panamanian workmen.

Mr. Vecker further stated that he feels that this purchase of gas ranges practically makes gas the official fuel of the Zone, and that this decision has only come after an exhaustive series of tests, extending over a period of two years, which resulted in bringing out forcibly the economy of gas, both in money and in labor, as shown by the following interesting figures: In the district of Ancon, where the trial tests were conducted, the average monthly cost of gas, extending over a period of nineteen months, has been $5.13, while in the district of New Cristobal the average monthly cost has been $4.26 per consumer.

Questioned as to how the consumption of gas in Ancon and New Cristobal compared with the consumption of gas in the cities of Panama and Colon, Mr. Vecker stated that the comparison was most favorable, as during the first nine months of this year the average monthly gas consumption in the City of Panama was $5.89, and in Colon $4.72 per consumer.

This purchase of one thousand gas stoves by the Panama Canal for the use of their employees will undoubtedly be highly pleasing to the people of Panama, who have watched with considerable interest the dogged determination which this enterprise has displayed since its conception in 1917.

Annual Meeting—Eastern States Gas Conference

Bellevue-Stratford Hotel, Philadelphia, Pa.

WEDNESDAY—APRIL 9TH

11:00 a. m.

Opening meeting of Eastern States Gas Conference.

Address of Welcome—W. Freeland Kendrick, Mayor of Philadelphia.

Address by—P. H. Gadsden, President.

Address by—Alexander Forward, Secretary-Manager, American Gas Association.

Report of Secretary-Treasurer—L. R. Dutton.

12:30 to 2:00 p. m.

Annual Luncheon Meeting of the Pennsylvania Gas Association.

2:00 p. m.

Shop Practice in Expediting Work Orders.
G. I. Vincent, Syracuse, N. Y.

4:00 p. m.

Customers' Billing Methods.
W. N. Porter, U. G. I. Company, Philadelphia, Pa.

Evening

No meeting—Entertainment as desired by members.

THURSDAY—APRIL 10TH

10:00 a. m.

Use of Bituminous Coal for Generator Fuel.
W. J. Murdock, Superintendent, Coal Products Mfg. Co., Joliet, Ill.

Employees' Relations with Gas Company.
Jacob B. Jones, Bridgeton, N. J.

12:30 to 1:00 p. m.

Annual Meeting of the New Jersey Gas Association.

2:00 p. m.

New Business Topics:

Symposium with description of twelve typical industrial gas installations by Company Members of Conference.
J. Calhoun Smith, Reading, Pa.

4:00 p. m.

Gas Company Public Relations, Frank L. Blanchard, Henry L. Doherty Co., New York, N. Y.

7:30 p. m.

Banquet—Toastmaster, P. H. Gadsden, President.
Three prominent speakers.

Ladies invited—Entertainment by Madrigal Singers—Vaudeville & Dancing
Several Surprise Features

TWELFTH ANNUAL MEETING OF THE AMERICAN GAS LIGHT ASSOCIATION
Willard's Hall, Washington, D. C., Oct. 15, 16, 17, 1884

Forty Years Ago

The photograph reproduced on the opposite page is most interesting. It was taken in 1884 on the occasion of the twelfth annual meeting of the American Gas Light Association held at Willard's Hall, Washington, D. C., October 15, 16 and 17, 1884.

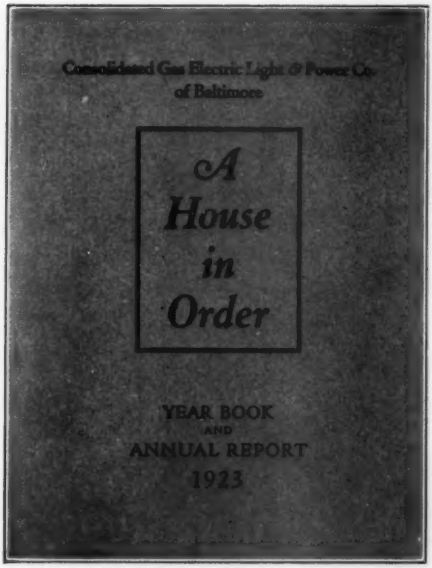
The proceedings for that year show that there was an attendance of some 130 members—the leaders in our industry 40 years ago.

A close study of the photograph will identify many—some whose names are but a memory today—some who are still the energetic workers now that they were then.

The list below contains all those whom we can identify, the number opposite each name corresponding to that on the photograph. If you can pick out any others, the editor will be glad to learn their names.

1. Thos. J. Hayward
2. F. C. Sherman
3. Chas. F. Prichard
4. W. H. Pearson
5. Charles W. Isbell
8. E. C. Learned
9. H. H. Edgerton
10. Wm. A. Stedman
11. Geo. S. Hookey
12. Emerson McMillin
14. John P. Harbison
15. Samuel Prichitt
16. C. E. Sanderson
17. James R. Floyd
19. W. P. Fodell
23. G. A. Hyde
25. James M. Starr
26. W. W. Goodwin
27. A. B. Slater
28. Malcolm S. Greenough
29. Austin C. Wood
30. Jos. R. Thomas
32. D. D. Flemming
34. C. E. Hequembourg
35. John McIlhenny
37. John Andrew
38. George S. Page
40. Thomas Turner
41. Burdett Loomis
42. A. G. Guerard
45. A. D. Cressler
46. John J. Griffin
47. Wm. Gardner
48. Chas. W. Blodgett
49. David H. Geggie
50. John Gribbell
51. Chas. H. Nettleton
53. H. F. Coggshall
54. Alex. C. Humphreys
55. H. B. Leach
56. James D. Perkins
58. John F. Findley
59. Isaac C. Baxter
60. Wm. Helme
61. Wm. Henry White
64. C. F. Smith
65. C. J. R. Humphreys
66. Charles H. Corbett
69. Fred. W. Floyd
72. O. N. Guldin
73. Frederick Mayer
75. Arthur E. Boardman
76. John H. McElroy
80. Wm. McDonald
81. T. Littlehales
83. Walton Clark
84. James Williams
88. John Cabot
89. James R. Gardner, Jr.
90. Peter Bauer
91. J. L. Hallet
96. Sterling F. Hayward
97. James F. Rogers
98. Wm. J. Fay
102. Leon P. Lowe
103. John Balmore
104. George B. Neal
105. F. H. Shelton
106. F. S. Richardson

Baltimore's Year Book



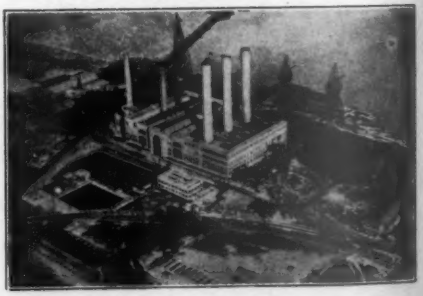
WE HAVE JUST received the year book and annual report published by the Consolidated Gas, Electric Light and Power Company of Baltimore. It bears the happy title, "A House in Order." This is the second year that this company has issued to its stockholders such a publication in advance of its annual meeting.

The book itself, edited by Mr. Arthur W. Hawks, Jr., is not only attractive but interesting and instructive in every one of its 62 pages and its many illustrations and diagrams. Its purpose, as quoted from the foreword is: "The Company desires that its stockholders and customers know as much as possible about its properties, its growth, its progress, its policies and its achievements." That, in truth, is the essence of satisfactory public relations and good will. As noted in the Baltimore press: "A 'Year Book' setting forth in great detail and easily understood language its affairs during the preceding year, a book so different from the usual public utility report that it attracted attention in all parts of the country."

As an added innovation this year, the stockholders will find both the year book and the annual report bound within the same covers, the latter, in its own separate binding, easily removeable for filing.

"A House in Order" certainly merits the attention and close study of every gas executive.

Arthur W. Hawks, Jr.



An Illustration

GENERAL

CHAIRMEN OF GENERAL COMMITTEES ORGANIZED TO DATE

Accident Prevention—F. W. Fisher, Rochester, N. Y.
Amendments to Constitution—Wm. J. Clark, Mt. Vernon, N. Y.
American Engineering Standards Committee, Representative on—A. H. Hall, Cambridge, Mass. —(Alternate Representative) W. J. Serrill, Philadelphia, Pa.
Award of Beal Medal—J. B. Klumpp, Philadelphia, Pa.
Chamber of Commerce—R. B. Brown, Milwaukee, Wis.
Cooperation with Educational Institutions—W. G. Gribbel, Philadelphia, Pa.
Customer Ownership—Chas. A. Munroe, Chicago, Ill.
Education of Gas Company Employees—B. J. Mullaney, Chicago, Ill.
Finance—James Lawrence, New York, N. Y.
Gas Code—W. R. Addicks, New York, N. Y.
Gas Standards and Service—R. B. Harper, Chicago, Ill.
National Fire Protection Association—R. S. Doull, New York, N. Y.
Nominating—H. A. Norton, Boston, Mass.
Rate Fundamentals—H. M. Brundage, New York, N. Y.
Representation on National Joint Committee of Public Utility Associations—D. D. Barnum, Boston, Mass.; R. B. Brown, Milwaukee, Wis.; H. L. Doherty, New York, N. Y.; A. Forward, New York, N. Y.; C. H. Geist, Philadelphia, Pa.; J. B. Klumpp, Philadelphia, Pa.; A. P. Lathrop, New York, N. Y.; Chas. A. Munroe, Chicago, Ill.
Standard Gas Appliance Specifications—W. T. Rasch, New York, N. Y.
United States National Committee of International Commission on Illumination, Representatives on—Howard Lyon, Gloucester, N. J.; E. H. Earnshaw, Newark, N. J.; G. G. Ramsdell, New York, N. Y.

Revision of Catechism of Central Station Gas Engineering Practice in the United States

In 1909 the Trustees of the Gas Educational Fund published the Catechism of Central Station Gas Engineering Practice in the United States. The material in this volume was compiled by Mr. A. E. Forstall, Secretary of the Educational Fund, from the questions and answers sent out to the members of the practical class conducted by the trustees.

At the time of its publication, the Catechism was undoubtedly the most authoritative work on American gas practice and its popularity with the industry rapidly exhausted the first edition. Since 1909, there have been many developments in the art and there has been a growing and insistent demand upon the Association for the publication of an up-to-date work on gas manufacture and distribution to take the place of the former Catechism.

When the assets of the Trustees' Gas Educational Fund were turned over to the American Gas Association in January of this year, the question of publishing a revised edition of the former Catechism of the Trustees was referred to an Editorial Committee with Mr. W. J. Serrill of Philadelphia as chairman. This committee after consideration of the scope of the new edition and the most practical method of gathering necessary data for revision submitted their report to the Executive Board at its meeting February 15, 1924, and were authorized to proceed immediately with the work of revision.

To those of our members who have used and know the value of the Catechism this will be very welcome news and it is with considerable pleasure that we announce the plans of the Editorial Committee so far as they have been developed to date.

Method of Revision

Mr. A. I. Phillips, 50 Church Street, New York, N. Y., who was formerly connected with the A. G. A. staff as service engineer, has been engaged to gather the material for the new edition and to rewrite the Catechism subject to the approval of the Editorial Committee and the following technical advisors, who have each been assigned a particular portion of the manuscript for criticism:

Members	*Assignment*
A. C. Fieldner, Bureau of Mines, Pittsburgh, Pa.	Bituminous & Anthracite Coal (Section II, Parts 1 and 2)
C. A. Lunn, Consolidated Gas Co. of N. Y., New York, N. Y.	Gas Oil (Section II, Part 3)
A. W. Warner, Philadelphia Suburban Gas & Elec. Co., Chester, Pa.	Operation and construction of Carbonizing Plants (Section III, Part 1)
E. A. Dieterle, Peoples Gas Building, Chicago, Ill.	Coal Gas Residuals (Section III, Part 1)
L. B. Eichengreen, United Gas Improvement Co., Philadelphia, Pa.	Carburetted Water Gas (Section III, Part 2)
Geo. E. Whitwell, Tacoma Gas & Fuel Co., Tacoma, Washington.	Back Run Process
	Operation Carburetted Water Gas with Low Grade Oil
W. W. Odell, Bureau of Mines, Minneapolis, Minn.	Operation Carburetted Water Gas with Bituminous Coal
R. L. Fletcher, Providence Gas Co., Providence, R. I.	Coal Handling Machinery (Section III, Part 3)
A. C. Klein, Stone & Webster, Inc., Boston, Mass.	Boilers (Section III, Part 3)
H. E. Bates, The Peoples Gas Light & Coke Co., Chicago, Ill.	Engines & Exhausters (Section III, Part 3)
S. P. Cobb, Electric Bond & Share Co., New York, N. Y.	Condensers, Washers and Scrubbers
Dr. A. R. Powell, Chicago By-Product Coke Co., Chicago, Ill.	Purification and Impurities in Gas (Section III, Part 3)
F. W. Sperr, Jr., Koppers Company, Pittsburgh, Pa.	Chemical (Section V) Liquid Purification (Section III, Part 3) Chemical Control
M. E. Benesh, The Peoples Gas Light & Coke Co., Chicago, Ill.	Station Meters (Section III, Part 3)

Members	*Assignment*
J. H. Braine, Brooklyn Union Gas Co., Brooklyn, N. Y.	Holders,—Operation & Maintenance (Section III, Part 3)
John Mason, Bartlett Hayward Co., Baltimore, Md.	Holders—Construction (Section III, Part 3)
J. D. Shattuck, Philadelphia Suburban Gas & Elec. Co., Chester, Pa.	High Pressure Distribution
J. D. vonMaur Consumers Gas Co., Toronto, Canada	Medium Pressure Distribution
H. B. Andersen, Philadelphia Gas Works, Philadelphia, Pa. F. C. Weber, H. L. Doherty & Co., New York, N. Y.	Street Mains (Section IV)
C. E. Reinicker, The United Gas Improvement Co., Philadelphia, Pa.	Services & Housepiping (Section IV)
Walton Forstall, The United Gas Improvement Co., Philadelphia, Pa.	Consumers Meters (Section IV)
Joseph Lucena, Syracuse Lighting Co., Syracuse, N. Y.	Complaints (Section IV)
J. M. Rusby, The United Gas Improvement Co., Philadelphia, Pa.	Physical (Section VI)
J. S. Haug, The U. G. I. Contracting Co., Philadelphia, Pa.	Tar Extractors
W. D. Stewart, Fall River Gas Works, Fall River, Mass.	Electrical Apparatus in Gas Works
E. H. Bauer, Worcester Gas Light Co., Worcester, Mass.	By-Product Coke Ovens and Gas Ovens
E. L. Hall, Portland Gas & Coke Co., Portland, Oregon W. S. Yard, Pacific Gas & Electric Co., San Francisco, Cal.	Oil Gas Manufacture

All builders of apparatus and accessories used by gas companies have been requested to submit descriptions of the apparatus which they handle so that the new edition may be complete and up to the minute from this standpoint and the cooperation of many manufacturers has already been assured.

The schedule laid down for the editor contemplates delivery of completed man-

uscript by October 1, 1924, and it is hoped that the final correction and printing of manuscript may be accomplished so that copies of the new edition will be available not later than Jan. 1, 1925.

Scope of New Edition

The revised edition will abandon the question and answer form but in other respects is to retain substantially the arrangment and scope of the present edition except that all material relating to utilization, candle power and obsolete matters is to be eliminated. The new edition will then be confined to the manufacture and distribution of gas and a discussion of such chemical and physical matters as are pertinent thereto. So far as manufacture is concerned it will be based on a continuous description of the various pieces of apparatus and accessories usually employed in the various types of gas manufacturing plants together with a detailed description of their functions. Greater stress will be laid on theoretical fundamental discussions of the carbonization process and water gas cycle, and heat balances will be included.

References as complete as possible will be made to various authorities and there will be included at the end of each chapter or section a series of questions on the salient points covered, for the purpose of review in cases where the Catechism is used as a text book.

The new edition is to be brought up-to-date on all developments subsequent to its publication in 1909. Among the new subjects which will be added may be mentioned: By-Product Coke Ovens, Gas Ovens, Vertical Retorts, Inclined Retorts, Oil Gas Manufacture, Complete Gasification, Low Temperature Carbonization, Steaming Retorts, Automatic Control of Water Gas Sets, Operation with Low Grade Oils, Use of Bituminous Coal in Generators, Back Run Process, Liquid Purification, High Pressure Distribution, Pumping Gas, Welding, Calorimetry, Recovery of Light Oils, Chemical Control, Pressure Control, Producers, etc.

The following letter received from the President of the Indiana Gas Association is indicative of the esteem in which the former Catechism was held by the gas men who have used it:

Mr. L. J. Willien, Chairman,
Technical Section, American Gas Ass'n,
342 Madison Avenue,
New York, N. Y.

Dear Sir:

In going over the minutes of the recent meeting of the Managing Committee was very much gratified to note the report of the Editorial Committee on the Revision of Catechism of Central Station Gas Engineering Practice, which is to be revised and brought up-to-date.

I have a copy of the old edition which Mr. Forstall edited several years ago, and I believe I and my assistants have used it more than all of our other hand books combined. This book was written in such a clear concise fashion that it can be handed to a Cadet Engineer and if he will study it he will in a few weeks have a better knowledge of the gas business than he would have by doing miscellaneous reading over a period of as many years.

The company with which I am connected will subscribe for six copies as soon as it is off the press.

Yours very sincerely,
(Signed) LEONARD FITZGERALD,
President.

You never get out of a community anything more than you put into it.—PHILIP H. GADSDEN.

Extension of Service Under Difficulties

What one small gas company was up against in laying mains. The Limestone formation required drilling and made digging slow and tedious and the making of extensions an expensive operation. The illustrations show the conditions which have to be met by the Martinsburg Heat & Light Co., Martinsburg, W. Va.

Through Limestone

Another section of hard going

Affiliated Association Notes

Southwestern Public Service Association

The Southwestern Public Service Association will hold its 20th Annual Convention at New Orleans, La., with headquarters at Hotel Roosevelt, April 22 to 25. Secretary E. N. Willis has announced the following tentative program:

April 22nd, afternoon

Invocation; Address of Welcome; Response; Address of President, Southwestern Geographic Division; Address of President, Southwestern Public Service Association; address: "Prone Pressure Method of Resuscitation" by Samuel H. Reid, Bureau of Safety, Chicago; reports of Committees and Committee appointments.

April 23rd, morning

Address: "The Trend of Interconnection" by M. H. Aylesworth, National Electric Light Association; address: "Coordinated Transportation" by J. W. Welsh, American Electric Railway Association; address: "Financial Structure of a Public Utility"; reports of committees.

Thursday, April 24th, morning

General Session devoted to Public Relations. Address: W. H. Johnson, President National Electric Light Association; address: "Street Railways and the Public" by W. H. Sawyer, East St. Louis & Suburban Railway; address: "Employees Training for Better Public Relations" by S. M. Kennedy, Vice-President, Southern California Edison Co.; address: "A Giant Awakened" by Alexander Forward, Secy.-Mgr., American Gas Association; Prize Essay and announcements, the Woman's Committee, Southwestern Geographic Division.

Friday, April 25th, afternoon

Address: "Building in the Public Mind the True Conception of the Utilities" by E. F. Wickwire, Ohio Brass Company.

Gas Section Meetings—Wednesday, April 23rd, afternoon

Devoted to technical matters. "Maintenance and Repairs of Domestic Meters," Tom P. Walker, Baton Rouge Electric Company; "Rate Structure for Selling Gas," F. J. Schwab, New Orleans Public Service Inc.; "Results of Research and Practical Demonstration Tests in Welding Cast Iron Pipe Wires," H. Y. Carsons, Research Engineer, American Cast Iron Pipe Company, in collaboration with the Linde Air Products Co.

Thursday, April 24th, afternoon

Devoted to commercial matters. Discussion: "Testing Gas Appliances for Approval"; discussion: "Increasing Gas Sales," H. E. Danner, Houston Lighting & Power Company, C. H. Seidenglanz, Ruud-Humphrey Heater Company and others.

Friday, April 25, morning

Devoted to accounting matters. "Uniform System of Accounts," R. G. Soper, Dallas Gas Company; "Meter Deposits, Collections and Cut-offs," C. K. Fletcher, Ft. Worth Gas Company.

New Jersey Gas Association

About 40 men attended a meeting of the Industrial Fuel Sales Committee of the New Jersey Gas Association in Bridgeton, New Jersey, on March 12th. Chairman L. P. Leinroth spoke on "The Ways and Means of Getting the Industrial Load," G. C. Shadwell on "How to Sell Gas for Industrial Heating," and F. A. Tuttle on "The Early Installations of Industrial Fuel."

Gas Sales Association of New England

The Honorable B. Loring, Speaker of the Massachusetts House of Representatives, will address the Gas Sales Association of New England at its meeting on April 11th in Boston.

Affiliated Association Notes

Southern Gas Association

The operating gas companies of the South will welcome the good news that the Southern Gas Association, cooperating with the North Carolina State College, will conduct a short term gas meter lecture course at the State College in Raleigh, North Carolina, from July 7th to 11th.

Prominent men in the gas industry will deliver short addresses and talks, an expert has been engaged to take full charge of the course of instruction, and a very ambitious and intensive program is being arranged. This course is modeled after, and is similar to, the course conducted at the Iowa State College at Ames, Iowa.

A nominal fee for board, room and registration will be charged; this fee will be so small that anyone desiring to attend will find it no hardship to do so.

Anyone interested should communicate with Professor L. L. Vaughn, North Carolina State College, Raleigh, N. C., or B. F. Pickard, Chairman, Gas Meter Lecture Course, North Carolina Public Service Co., Greensboro, N. C.

Michigan Gas Association

Mr. George H. Waring, President of the Michigan Gas Association, at the request of the Michigan Committee on Public Utility Information, made a talk before the Rotary Club of Hastings, Michigan, on February 25. The subject was, "Public Utilities and Their Problems."

Empire State Gas & Electric Association

The Gas Section of the Empire State Gas & Electric Association held its annual two-day meeting on March 6 and 7 in Binghamton, N. Y., with an attendance of approximately 125. Chairman W. H. Earle presented a very fine program containing some novel features, among them reports from state district chairmen telling of the year's development in each district. A series of questions presented were answered and discussed in a lively and instructive manner.

The following addresses and papers were given: "Public Utilities and Their Public Relations," S. J. Magee; "The Future of the Gas Industry and the American Gas Association," Alexander Forward; "The Fuel Situation and Its Effects on the New York State Gas Industry," W. M. Carpenter; "The Back Run Method of Gas Manufacture," O. H. Smith; "Cast Iron Pipe Joints," Joseph Lucena; "The Use of Gas, as Determined by the New Gas Demand Meter," H. C. Deffenbaugh; "The Checkerless Carburettor on a Water Gas Machine," R. E. Kruger; Report on Labor Saving Machinery, J. K. Crowell; Report on House Heating, J. B. Allington.

Mr. F. F. Ingwall, Superintendent of Distribution, Binghamton Gas Works, Binghamton, N. Y., was elected chairman of the Gas Section for the coming year.

Pacific Coast Gas Association

Mr. Frederick S. Myrtle, Chairman of the Publicity Committee of the Pacific Coast Gas Association, has announced the next sectional gathering of that Association will be held in Seattle on Friday, April 25th. This meeting will consist of an all-day business session with a dinner and entertainment in the evening. There will be another sectional gathering in Los Angeles on Saturday, July 19th, along similar lines.

Associations Affiliated with A. G. A.

Canadian Gas Association
Date of affiliation—Mar. 25, 1919.
Pres.—C. A. Jefferis, 265 Front St., E., Toronto, Ont., Canada.
Sec.-Tr.—G. W. Allen, 7 Astley Avenue, Toronto.
Conv., 1924.

Empire State Gas and Electric Association
Date of Affiliation—Nov. 21, 1919.
Pres.—S. J. Magee, Associated Gas & Electric Cos., Ithaca, N. Y.
Sec.—C. H. B. Chapin, Grand Central Terminal, New York, N. Y.
Annual Meeting, 1924.

Illinois Gas Association
Date of Affiliation—Mar. 19, 1919.
Pres.—Robert B. MacDonald, Peoples Power Co., Moline, Ill.
Sec.-Tr.—R. V. Prather, 305 Illinois Mine Workers Bldg., Springfield, Ill.
Conv., 1925.

Indiana Gas Association
Date of Affiliation—April 24, 1919.
Pres.—L. Fitzgerald, Gary Heat, Light & Water Co., Gary, Ind.
Sec.-Tr.—E. J. Burke, Citizens Gas Co., Indianapolis, Ind.
Conv., West Baden Springs Hotel, West Baden, May 5, 6, 1924.

Iowa District Gas Association
Date of Affiliation—May 21, 1919.
Pres.—Charles Smith, Yankton Light & Heating Co., Yankton, S. D.
Sec.-Tr.—H. R. Sterrett, 551 Seventh St., Des Moines, Ia.
Conv., Sioux City, Ia., April 16, 17, 18, 1924.

Michigan Gas Association
Date of Affiliation—Sept. 18, 1919.
Pres.—Geo. H. Waring, American Public Utilities Co., Grand Rapids, Mich.
Sec.-Tr.—A. G. Schroeder, Grand Rapids Gas Light Co., Grand Rapids, Mich.
Conv., Detroit, Mich., Sept. 9, 10, 11, 1924.

Missouri Association of Public Utilities
Date of Affiliation—June 18, 1920.
Pres.—H. C. Blackwell, 1330 Grand Ave., Kansas City, Mo.
Sec.-Tr.—F. D. Beardslee, 315 N. 12th St., St. Louis, Mo.
Wiley F. Corl, Chmn., Affiliation Com., Missouri Utilities Co., Mexico, Mo.
Conv., Kansas City, Mo., April 9, 10, 1924.

New England Association of Gas Engineers
Date of Affiliation—Feb. 19, 1919.
Pres.—C. R. Prichard, Lowell Gas Light Co., Lowell, Mass.
Sec.-Tr.—J. L. Tudbury, 247 Essex St., Salem, Mass.
Conv., 1925.

Gas Sales Association of New England
Date of Affiliation—Oct. 1, 1919.
Gov.—F. A. Woodhead, 689 Massachusetts Ave., Arlington, Mass.
Sec.—J. H. Sumner, 719 Massachusetts Ave., Cambridge, Mass.
Annual Meeting, 1924.

New Jersey Gas Association
Date of Affiliation—April 25, 1919.
Pres.—James P. Hanlan, Public Service Gas Co., Newark, N. J.
Sec.-Tr.—R. A. Koehler, Public Service Gas Co., Newark, N. J.
Conv., Bellevue-Stratford Hotel, Philadelphia, April 9-10, 1924.

Pacific Coast Gas Association
Date of Affiliation—Sept. 18, 1919.
Pres.—H. R. Basford, H. R. Basford Co., San Francisco, Cal.
Sec.-Tr.—W. M. Henderson, 812 Howard St., San Francisco, Cal.
Conv., Santa Barbara, Cal., Sept. 15-19, 1924.

Pennsylvania Gas Association
Date of Affiliation—April 10, 1919.
Pres.—Grier Hersh, York Gas Co., York, Pa.
Sec.-Tr.—Geo. L. Cullen, Harrisburg Gas Co., Harrisburg, Pa.
Conv., Bellevue-Stratford Hotel, Philadelphia, April 9-10, 1924.

Southern Gas Association
Date of Affiliation—May 20, 1919.
Pres.—E. L. Richa, 1602 Lexington Bldg., Baltimore, Md.
Sec.-Tr.—E. D. Brewer, 75 North Mayson Ave., Atlanta, Ga.
Conv., Bon-Air Vanderbilt Hotel, Augusta, Ga., April 22-24, 1924.

Southwestern Public Service Association
Date of Affiliation—September 26, 1923.
Pres.—J. H. Gill, Dallas, Texas.
Sec.—E. N. Willis, 403 Slaughter Bldg., Dallas, Texas.
Conv., New Orleans, La., April 22, 23, 24, 25, 1924.

Wisconsin Utilities Association
Date of Affiliation—March 25, 1919.
Pres.—Harold L. Geisse, Wisconsin Valley Electric Co., Wausau, Wis.
Exec.-Sec.—J. N. Cadby, 445 Washington Bldg., Madison, Wis.
Conv., Hotel Pfister, Milwaukee, Wis., April 17-18, 1924.

Geographic Divisions

Eastern States Gas Conference
Date of Formation—April 11, 1923.
Pres.—P. H. Gadsden, The United Gas Improvement Co., Philadelphia, Pa.
Sec.-Tr.—L. R. Dutton, Philadelphia Suburban Co., Jenkintown, Pa.
Conv., Bellevue-Stratford Hotel, Philadelphia, April 9-10, 1924.

ACCOUNTING SECTION

W. A. SAUER, Chairman — H. C. DAVIDSON, Vice-Chairman

H. W. HARTMAN, Secretary

MANAGING COMMITTEE—1924

ARMSTRONG, J. J., Toronto, Can. (Canadian)
BARTON, W. H., Portland, Ore.
BISSELL, J. H., Boston, Mass.
BLANCHFIELD, J. J., Brooklyn, N. Y.
CARROLL, H. P., Beaumont, Texas. (Southwestern)
CLINTON, DEWITT, Worcester, Mass. (N. E. Gas Eng.)
DOBBING, W. A., Boston, Mass.
FREY, H. F., Allentown, Pa.
HAASE, EWALD, Milwaukee, Wis. (Wisconsin)
HALL, I. S., Boston, Mass.
HEINS, J. W., Philadelphia, Pa.
HOFFMAN, F. C., St. Paul, Minn.
JAMES, F. M., Aurora, Ill. (Illinois)
JAMES, W. H., Petersburg, Va. (Southern)
KELLER, A. R., Syracuse, N. Y.
KURTZ, ADAM, Detroit, Mich. (Michigan)
LAWALL, H. J., Philadelphia, Pa.
LAWRENCE, JAMES, New York, N. Y.
MEYERS, W. J., New York, N. Y.
MURFIT, W. G., Newton, Pa.
PAGE, HOMER, Charleston, S. C.
PATTERSON, F. H., Rochester, N. Y.
PETTES, W. H., Newark, N. J. (New Jersey)
PLATT, C. W., Portland, Ore. (Pacific Coast)
PORTER, EDWARD, Philadelphia, Pa. (Pennsylvania)
POTTER, C. F., Newark, N. J.
REESE, J. G., Baltimore, Md.
REYNOLDS, A. E., Springfield, Mo. (Missouri)
SCHMIDT, WM., JR., Baltimore, Md.
SCOBELL, E. C., Rochester, N. Y. (Empire State G. & E.)
SCOTT, J. M., Wilmington, Del.
SEARING, R. B., Sioux City, Ia. (Iowa)
SEARLE, A. A., New York, N. Y.
SHORT, A. F., Providence, R. I.
TOSSELL, A. L., Chicago, Ill.
TRACY, F. B., Muncie, Ind. (Indiana)
WILBUR, A. A., Brockton, Mass. (Gas Sales of N. E.)
WINTERS, A. C., Chicago, Ill.

CHAIRMEN OF SECTIONAL COMMITTEES ORGANIZED TO DATE

Analysis of Gas Company Statistics—H. J. LAWALL, Philadelphia, Pa.

Budget—F. H. PATTERSON, Rochester, N. Y.

Customers Accounting—H. J. FREY, Allentown, Pa.

Insurance—J. G. REESE, Baltimore, Md.

Nominating—J. W. HEINS, Philadelphia, Pa.

Relations With Customers—DEWITT CLINTON, Worcester, Mass.

Improving Relations Through Employees Visiting Customers' Premises—W. H. BARTON, Portland, Ore.

Errors, Their Correction and Prevention—J. M. ROBERTS, Chicago, Ill.

Security Holders' Records—E. MACMONNIS, Philadelphia, Pa.

Welfare Systems—O. F. POTTER, Newark, N. J.

State Representatives and Contributions to Monthly—A. L. TOSSELL, Chicago, Ill.

Uniform Classification of Accounts and Form of Annual Report to Public Service Commissions—W. J. MEYERS, New York, N. Y.

Fire Insurance Rate Reductions

J. G. REESE, Chairman, Insurance Committee, Baltimore, Md.

FROM TIME TO TIME, in reports or in the Monthly, the Association has announced that a reduction of fire insurance rates on gas properties has been effected. Some member companies have been benefited by this reduction, but others have not. Naturally the question arises as to why all companies have not obtained rate reductions.

In many cases the answer lies with the company itself, or with the broker who places the insurance. Primarily however the fault lies with the company, because it is probably entitled to a reduction, and the broker should be requested to obtain it. When the property is re-rated, it may be that the new rate will appear to be higher than the old one, but as a matter of fact, there will be some charges in the rate which may be removed by a very small expenditure. In any case the amount expended will probably be repaid several times by the saving in premiums.

When the new rate is finally obtained from the broker, he should be requested to give the various charges that make up the rate. Often times it will be found that there will be a penalty of 10¢ for absence of "No Smoking" signs, or 5¢ for insufficient supply of sand pails or extinguishers. The absence of approved waste cans, metal lockers, or drip pans may add a charge of 5¢, while improper arrangement of forges, stoves, heating

plants, defective wiring, flexible metal tubing or rubber gas connections may cause a charge of from 5¢ to 25¢. General untidiness, carelessness or accumulation of rubbish, or other objectionable features might add from 5¢ to 50¢ to the rate. The installation of a fire door may cut off one hazard from another, and materially reduce the rates on both buildings. An analysis of the rate will disclose the charges making up the total, and the broker should be requested to show this rate make up. It can then be easily determined what expense will be necessary to remove the different penalties and whether this expense will be justified by the saving in premiums.

The question of saving in premium alone should not be the determining factor in making improvements to bring about removal of charges. The circumstances which produce these penalties are fire hazards, and should be abolished as a matter of good sense, since they are productive of fires, or the spread of fire, and hence liable to interfere with continuity of service which is one of the chief aims of all public utilities. It is only fair that there should be co-operation on the part of the utilities, in fire protection and fire prevention, if rate reductions are sought. There is a certain obligation to maintain plants in proper condition, in order to justify the lower rates; again there is the duty to the public, to maintain "good public service," and one of the ways to continue this service is the avoidance of fires, hence the necessity of removing any hazard of fire.

With all due respect to brokers, it must be said they will not make attempts to reduce rates unless pressed, as it means loss of revenue to them. Without criticizing brokers or agents as a class, frequently it is found that they do not know enough about rate making to obtain the desired result for the insured. Therefore it will be more beneficial to member companies if they obtain the services of well-known high class insurance brokers, rather than give their business purely upon a friendship, or social basis, if best results and savings in premium are desired.

In some localities the new schedule of rates has not been adopted entirely, but even there persistent pressure brought upon the broker, and in turn upon the rate making body having jurisdiction in the particular territory, will be productive of results. The insurance committee desires to be kept informed of localities where rate reductions are not obtained, and although no immediate action may accrue, the committee will continue to work through the means available to it. If relief is not obtained finally, then the committee may suggest other means. A thorough study of the entire insurance situation is a part of the work of the committee, which is now only in its third year of activity, and it has not had sufficient time to investigate as fully as it desires. As its purpose is the obtaining for the member companies of lowest rates with maximum safety, it must proceed slowly, considering the magnitude of the proposition.

It will benefit member companies to study closely the self-inspection blank prepared by the committee, and made a part of its 1923 annual report at Atlantic City. This blank points out very definitely fire hazards and bad housekeeping conditions. The presence of some of the conditions named therein produce penalties in the rate, and a careful study of the blank with the idea of correcting unfavorable conditions will be very beneficial. A. G. A. Headquarters has a supply of the self-inspection form for distribution to members requesting them.

Self-Feeding Multiple Forms in the Gas Office

JOHN L. CONOVER, Public Service Gas Company, Newark, New Jersey

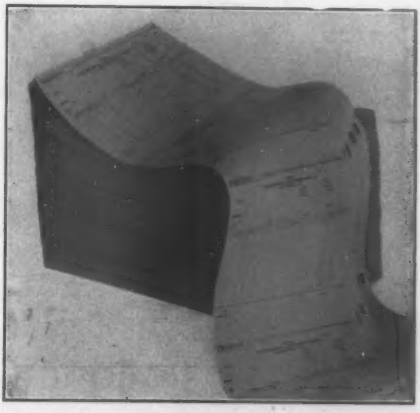
IF WE WERE COMPELLED to conduct our personal affairs in the same manner as business is conducted by the companies for whom we work, our leisure hours would be filled with vexation. Each of us is daily called upon to be a principal in at least a few transactions, if only in securing ordinary conveniences of existence. We are usually careful to see that our inconsequential dealings are attended by little formality or incidental inconvenience. Not so easily, however, can be conducted the affairs of our companies, with whom every transaction must be recorded on paper. Every purchase or sale, every receipt or payment of cash, every outgoing or incoming commodity must be covered by record—and usually multiple record. Relatively few, even of the most trivial items, can be permitted to escape individual entry and subsequent scrutiny. If an army travels on its stomach, business travels on the records it keeps.

Being committed for purposes of control and guidance to its certain burden of record-keeping, business nevertheless constantly seeks simple solutions of its complexities. Solutions are wanted that will simplify the motions of doing business without decreasing the desired results; that will improve contacts with customers, reduce costs, do away with drudgery, improve communication.

No one is more ardent than the public utility man in his search for improved clerical processes, for the nature of his business involves an immensity of clerical detail to be found in no other business with the possible exceptions of banking and insurance.

In spite of the utility man's problems, many processes such as the petty cash system, the voucher system and the stub system of balancing, classifying and posting cash; and many devices such as the typewriter, adding machine, duplicating machine and tabulating machine have come to enable him to transact his business rapidly and to obtain more promptly the periodical reports of operations that are necessary to management.

Even office forms have not escaped the heavy hand of the efficiency crusader, and today there is rapidly coming into use in gas company offices a process which, the writer believes, after effecting an installation of this process in his company, is destined by merit to come into wide use in gas company offices. To escape proprietary names and at the same time not stretch the truth, the term, *Self-feeding* multiple forms for typewriter and hand register may be used to designate the process.

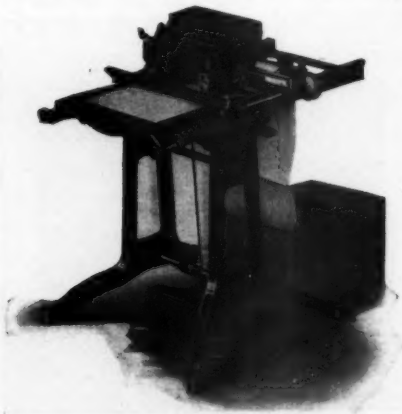


A magazine loading of self-feeding forms ready to be started through typewriters or hand register.

When self-feeding multiple forms are used on the typewriter, the typist is no longer feeder to his machine. Through use of this kind of form the typist can stick to his penchant for being pressman at a saving of twenty to forty per cent of his employer's time. The slow, expensive, finger-soiling operations of collating forms, interleaving carbon sheets and feeding the typewriter have been eliminated. Moreover, with these self-feeding forms it is unnecessary for the typist to remove carbon leaves from finished copy.

Under this process once the first form and its copies have been started into the typewriter the forms feed themselves. There is then nothing to do but typewrite the set of forms, pull it forward and tear it off along the edge of a knife, repeating these operations until a magazine of from one to several thousands of self-feeding forms has been exhausted.

Each time a set of forms has been pulled forward to be torn off at the knife, another takes its place in the exact position for typing. The carbon handling problem has been solved by spooling of the carbon. When a section of the carbons loses freshness, it is reeled away for a few inches and fresh carbon thereby brought into place. The carbon is used in continuous hundred-foot rolls and is as many-plied as copies are required.



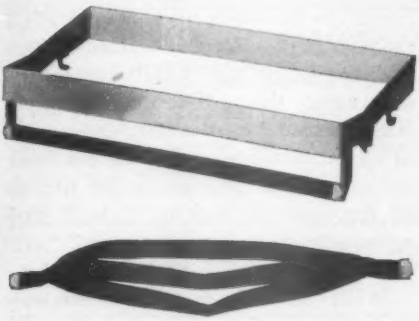
Automatic Feed Writing Machine with forms in place for continuous operation.

A dozen typewritten copies may be turned out legibly. Perfect registration of printed matter straight down through all the copies is obtained by printing the entire set on one press run. The maintenance of correct registration of printed matter is checked up throughout the continuous feeding of each packet of forms by reason of the fact that the forms are folded into the magazines.

Notwithstanding the great differences in these forms as compared with loose-cut or padded forms, almost any refinement of the printing art likely to be required in the most elaborate commercial system is obtainable. The forms may be printed on the back as well as the front. The copies may be variously tinted over their entire faces or tinted with distinctive color signals in their corners. One or more parts of the form may be made up with perforated extra margins for insertion in binders. Any or all parts of the form may be consecutively numbered. If additional data must be typewritten on the forms and their copies from time to time after their initial preparation, the backs of the forms may be carbon-spotted so as to obviate the inter-leaving of carbon for these additional inscriptions. The forms may be carbon-spotted so as to obtain registry on one copy and not on another. The forms may be perforated vertically or horizontally so that stubs may be detached.

Application of this process to some of the routine form writing operations in the gas office might necessitate making some changes and modifications of system to secure the undoubted economies of the process. On the other hand, it is probable that in every gas office there are

opportunities for using the process to advantage without changing the system in use.



Attachment for converting any make of typewriter for use of self-feeding forms and one of the styles of duplex ribbons used for obtaining copies.

Purchasing orders, which are sometimes issued by gas companies in as many as eight parts, are readily adaptable to the self-feeding multiple form process and are coming into common use in utility companies. This order form with its usual requirement of consecutive numbering, punching of a copy or copies for binder insertion and signal tinting of copies, seems to offer a clear-cut logical application of the process.

The self-feeding multiple forms may also be used for appliance orders and accounting. In this application the process tends to speed installation service for the customer by facilitating dispatch of order copies to the storekeeper, the sales manager, the bookkeeper, the shop dispatcher, the transportation man and the fitter.

In an actual installation of this process for a gas company's merchandise order system one of the copies has been specially designed as the customer's ledger account. The ledger account, with the complete charge entry, is therefore written up at the same writing as the order. In this instance the ledger sheet is double the size of the order and the extra width, which is folded, is columnarized for the entry of installment credits. The ledger sheet is designed with perforated margin and after its typing is unfolded for insertion in a loose-leaf binder. Under the company's system cash and carry sales of small sales floor stock, originally recorded on sales checks, are entered once daily in bulk on a merchandise order, the ledger account copy of which the bookkeeper receives.

Use of the self-feeding forms for sales tickets is restricted to the sales floor. The outside salesman would have to retain the pocket ticket books or sales pads. On the sales floor the hand register provides a quick medium for writing up sales in the customer's presence on self-feeding forms. In this connection, it is the writer's opinion that a form could be devised which would provide for the preparation at one writing of the sales ticket and the customer's and the company's copy of the conditional sales agreement for installment sales.

The customers' service department is a particularly promising and interesting field for applying the self-feeding form system on either the hand register or typewriter, as may be preferred.

Cabinet or register for hand-prepared self-feeding forms.

Where many varieties of service forms are in use, as is the case with most gas companies, the self-feeding process induces the use of a fewer number of service forms, since it might prove impractical to supply separate self-feeding form units for each kind of order.

The Relations with Customers Committee's exhibit of the service forms used by twelve gas companies, displayed at the last Association convention, showed that three of the twelve companies conducted their service operations by using less than four different forms of orders; whereas the other eight companies were using from four to seventeen different kinds of orders for the various service operations. Only one company succeeded in getting along with a single combination "work order" for all operations. This means only the orders usually prepared at the customers' service counter and does not include applications, deposit and surety forms, or meter orders emanating form the companies' bookkeeping, collection or adjustment departments.

In the writer's opinion the full benefit of self-feeding forms could not be obtained unless there is some degree of form unification at the order counter. Some few gas companies, among which are both large and small companies, have already adopted unified meter orders and are using the self-feeding principle. These unified forms contain designations of all the meter operations on one form, the order clerk determining the purpose of the order by making a check mark against the work "set," "remove," "turn-on" or "shut-off," as the case may be.

While there is an evident tendency toward unification of forms and consequent reduction in the variety of forms used at the order counter as a result of the advent of the self-feeding form system, it must be conceded that when a single form is used for many operations, the benefits of the old system of distinctive colors for distinctive orders are lost to ledger clerks, meter record clerks and addressing clerks, to say nothing of the shop personnel.

* * *

For Better Service

THE ELMIRA Water, Light & Railroad Company, Elmira, N. Y., have recently inaugurated a new plan for the instruction and education of their employees. To quote from a letter from them.

"We feel that all employees, and particularly those who deal with our customers, should know much more about the Company in general and about departments other than their own. This is particularly so in view of the fact that we are a combination company and our customers seem to expect a gas man to know all about the electric and railway departments, etc."

So on February 26, they gave the first of a series of dinners to department heads and their assistants and employees who come into constant contact with the public, such as telephone operators and complaint clerks. All branches of the company, gas, electric and street railway, were represented.

At this dinner the explanation of gas making and gas distribution were taken up, as well as the work of the New Home Economics Department and the Sales Department.

PUBLICITY AND ADVERTISING SECTION

J. M. BENNETT, Chairman — F. L. BLANCHARD, Vice-Chairman
CHARLES W. PERSON, Secretary

MANAGING COMMITTEE—1924

BURNS, J. J., St. Louis, Mo. (Missouri)
CLIFFORD, F. S., Fitchburg, Mass. (Gas Sales of N. E.)
COONEY, E. J., Lowell, Mass.
COOPER, STUART, Charleston, S. C. (Southern)
CRONE, F. W., New York, N. Y. (Empire State G. & E.)
DRURY, N. B., San Francisco, Calif. (Pacific Coast)
FENNIMAN, J. R., New York, N. Y.
FRANKLIN, S. J., Millville, N. J. (New Jersey)
GOULD, WILLIAM, Boston, Mass. (N. E. Gas. Eng.)
GREEN, H. L., Waterloo, Ia. (Iowa)
HALLADAY, G. D., Grand Rapids, Mich. (Michigan)
HAWES, A. W., Jr., Baltimore, Md.
HUMM, A. W., New York, N. Y.
JANSEN, F. A., Ottawa, Ont., Can. (Canadian)
LIGHTBODY, JAS., Vancouver, B. C.
MORRIS, H. C., Dallas, Texas. (Southwestern)
MULLANEY, B. J., Chicago, Ill. (Illinois)
POTTER, CLYDE H., Los Angeles, Cal.
ROLSTON, R. J., Philadelphia, Pa. (Pennsylvania)
SHEPARD, I. C., Evansville, Ind. (Indiana)
SOULES, E. E., Chicago, Ill.

CHAIRMEN OF SECTIONAL COMMITTEES ORGANIZED TO DATE

Contact With State Information Bureaus—J. S. S. RICHARDSON, Philadelphia, Pa.
Nominating—F. W. CRONE, New York, N. Y.

Possibilities of Public Utility Information Work*

GEORGE McQUAID, Director, Texas Public Service Information Bureau

THE PUBLIC UTILITY INDUSTRY is an essential service to the people of communities served by such industries.

This industry, taken by and large, is only about forty years old. For twenty-five of these forty years it has been more or less generally set apart under the laws and by public opinion as an industry so affected by a public interest as to be peculiarly subject to regulation as to its practices and charges. In the beginning of regulation perhaps the thought was to protect users of these public utility services from discrimination, overcharges and other practices that would not square with the public function of the industry.

Development of the idea involved in the theory of essential public service, however, came also to connote protection of this essential industry from practices that might impair its ability to serve well.

So now we have got the services of transportation, light and power, communication, and gas, along with more or less other services according to the laws or views of regulatory bodies, which are strictly regulated in their practices and charges with a view to maintaining adequate nondiscriminatory services at a price which will yield a fair return on the value of the property devoted to producing such services.

Public Must Be Informed

It is a fifty-fifty situation as between the people who use these utility services and the companies that supply them. Both are under regulation insofar as their interest in such service is concerned to the end that the services shall be efficient and constant and that the return shall be reasonable.

It is to the interest of the people who use the telephone, electric lights and power, street cars, and gas that these services shall be maintained in the best possible shape.

Consequently it is of first importance that the people be informed about these services, their methods, costs, equipment,

* A paper read before the Oklahoma Utilities Association.

expansions to meet increased demands, preparedness for such increased demands, and all the other things that bear directly or proximately upon the quality and cost of the service to such people. It is not only the right of the people who use these services to receive this information, but it is their duty to get it. And it is a duty, implied in their contract with their communities on the part of the utility industries, to see to it that the people shall be informed as to these services. So far as the utility industry is concerned, the duty that is owed to the people in this regard is also a beckoning hand toward good business methods.

All good public utility companies understand and practice the business of informing their own customers and the people of their communities as to these things.

The Birth of State Committees

Many public utility industries are not in the class with the more progressive utilities.

Still another situation is found in the large areas of territory that have only one or maybe no public utility service.

So, forward-looking public utility men several years ago conceived the idea that the work that is being done by the more progressive utility companies toward informing their own communities about this essential service needed to be broadened and supplemented by an agency that could reach the whole body of people—all the millions of American people—with a true picture of what the public utility service means to them as individuals and to the state.

Samuel Insull, president of the Commonwealth Edison Company of Chicago and of the People's Gas Light and Coke Company and interested in utilities in a score of states, is generally given credit for conceiving the plan of setting up committees of utility men in the several states whose work is to inform the public on the fundamentals and particularly the economics of the public utility industry. The Illinois Committee on Public Utility Information was formed five years ago this spring. Its purpose was as stated and its object was to the end that a better public understanding of the industry may tend to facilitate the development of utility services—electric, gas, electric railway, and telephone—for the people of that state.

Thirty-seven states now have the services of similar committees. Most of these committees have been functioning less than three years. The newest committee is that which will serve the Carolinas. It has been going but a few months.

What the Committees Do

Generally speaking the several state committees have followed the lead of the Illinois Committee. These committees are made up of representative men of the several utilities, named so that they may speak for the whole utility industry in their states. These committees hold regular frequent meetings. The idea of the utility men who established these committees was to set up an organization in which complete confidence could be placed, which would collect and disseminate interesting facts about the industry to whomsoever desired them. These committees should, and generally do, keep out of all controversies, social, industrial, or political. They have nothing to do directly with legislation or courts or commission or specific rate questions. Their sole purpose is or should be to get the people interested in their utility services and to develop an enlightened public opinion as to the economics of industries that are essential and as to the relation of such industries to the community and the state.

The work of these committees naturally develelops into constantly expanding activities.

Information for the newspapers and magazines naturally is one of the major functions of the state committee. The committee holds itself out to the press as a source of information about the utilities that is ready to supply anything in the way of facts and statistics that may be desired. In addition to this invitation to the press, the committee on its own motion assembles and transmits to the press a great deal of matter that is of interest. Much of this is used and much of it becomes the basis for special assignments to the newspaper's own staff writers.

Broadcasting the Facts

All classes of people are constantly seeking information about the utilities. The state committee supplies this information. Among the people who ask for this sort of information are students, investors, teachers, club women, special writers, utility operators, regulatory commissions, city officials, lawmakers, commercial clubs, and bankers. This demand requires the assembling of much data; and the degree to which the committee may be able to supply this demand is in proportion to the active cooperation of the utility companies with the committee.

Special informatory matter has been compiled by the state committees in the form of pamphlets and bulletins. This matter is sent to special lists, being placed in the hands of persons who are interested in reaching accurate conclusions.

The state committee is cooperating with the general organizations of the industry and with the other state committees. It is a part of the commercial and civic organization of its state and assists the state agencies in securing and disseminating information in its field. It generally cooperates with the utility men and newspapers in preparing advertising copy of a general character and supplying this to the utilities and newspapers for adaptation or such other use as they may agree to make of it. At least one hundred local utility organizations in Texas are using the advertising matter supplied by the Texas committee.

Public speaking activities by the utility men in their communities is urged by the state committee and every possible assistance is given the utility men to prepare to tell the utility story as often as occasion may arise. To this end the state committee invites civic organizations, luncheon clubs, women's organizations, chambers of commerce and schools and colleges to make engagements through the committee or with their local utility men for addresses on utility subjects.

This job of telling the utility story to the folks at home by word of mouth is one of the biggest items in the building of good public relations, and the assistance and leadership of the state committee in the work has resulted in making all regular luncheon club members, for instance, familiar with the fundamentals and the economics of the business.

Building Better Public Relations

The services of utility men, through the state committee, have been called upon by a great many colleges and universities and by high school principals and teachers, to an extent that has already brought about interest in the essential utility services on the part of school and college students in such measure that in Texas this year we are delivering more than seventy addresses in nine colleges and universities and in a hundred high schools.

In the states where the utility men have generally cooperated with each other in support of the activities of the state committees on public service information, the result of the educational work is apparent in better public relations for the industry as a whole; and in some instances the work has been of direct benefit in communities where the utilities have been doing a very good job on their own account.

This committee work can not take the place of the work that individual companies must do with their own employees and customers. But it can supplement that work.

In the building of group good will, however, that is designed to and does reach every section of the state and has its effect in the minds of the people generally, the state committee work is or may be made valuable to an extent that may easily spell the difference between hostility to industries of the character under consideration and active support of their efforts to supply service that the communities need and can not do without.

Results Already Apparent

Those states wherein the public utility men have worked with their state committee are examples of what this cooperation can accomplish for the good of the industry. They are the progressive states where the utility companies have worked both as single units and as a group to tell the people about their business. In such states it is generally understood by the people that the annual turnover of a public utility is about one-fifth of the capital investment. Those people have been thinking of a turnover of four or five times the capital investment—for it is the trading business with which they are familiar. They have learned that the revenues of a public utility, even at the best it may do, are sufficient only to pay the cost of service —which, of course, includes the wages of the capital involved in the service. They have learned that to impose unjust and burdensome tax burdens upon a public utility is simply to make a tax gatherer out of the utility and that this burden is not a burden on the utility but comes right back to be paid by the rate payers and thus bears unjustly upon them as compared, for instance, with heavy investors in taxable property that does not always bear its fair share of the burden.

There are many other angles to this state information committee activity that may be readily traced by an inquiring mind—either that are being noted by the committees or which may be noted by them with the cooperation of the thinking and responsible utility men of the state.

Represents Entire Utility Industry

The cause of customer ownership has its best protagonist in the state committee on public service information. By telling the people about the utility business in terms that they understand these committees have secured their interest. Having aroused their interest they have readily become convinced that an investment in a public utility security is a safe investment; that it does not hold the roseate promise of a barrel of gold when the oil well comes in, with a chance of ten thousand to one that there will be no well, but that the industry must go on and that it is entitled to earn a fair return on the capital invested and that it is to the interest of all the people who use its service that this fair return shall be earned, not only that the investment may earn its wages but that the com-

munity may be served now and as it grows.

The state committee must represent the public utility industry as a whole. It must strive for and realize that until it shall secure the confidence of the people of the state in its methods and productions it can not accomplish all that it should do.

Every state committee in the nation, so far as the industry knows, is dealing fairly with the public. And in most of the states the public and the press realize that this is the case. In this attitude of the state committee for a square deal is reflected the attitude of the best part of the industry. But the state committee, with its personnel of big men of the industry to guide it for the unselfish purpose of benefiting the industry as a whole, and with its position of segregation from the individual problems of any single utility, group, or industry, has a comparatively simple task to inspire the fullest degree of public confidence.

Reaching the Average Citizen

The people are willing to take what the committee says as true. The bigger job of the committee is to get the community interested in the subject of its activities as being of vast importance to every citizen. In this they have the competition of amusements and sports and scandal and crime, each of which always wins a place in the news of the day.

On the occasion a few months ago of several big prize fights one of the state committee directors sent out a little story comparing the amount of newspaper space given to these events with that given to the great public utility industry with its sixteen billion dollars investment and the millions of customers who depend upon its services for comfort and even for life itself. This item was copied by most of the committees in the other states and sent to the newspapers. In a recent issue of Lloyd's magazine the item was referred to as having appeared in more than half the weekly papers in Texas. Lloyd followed this by commenting: "Small city dailies and country weeklies may, after all, be preserving a better perspective of the affairs of men and women. But they are closer to the soil, to production, the fundamentals of good citizenship."

The public utilities owe it to their business, to the achievements of their engineers, to the work of their wonderful reasearch organizations, to tell the people about their business. But they owe it also to their state and nation as good citizens to contribute their share of public information to the end that the economics of industry shall be understood and that the citizens shall be enabled to give voice with authority on the issues that arise from time to time wherein the thin opening wedge of a movement may be discerned that holds ill forebodings for the state.

This service by the industry can be performed only to its fullest potency through the cooperative efforts of the utility men—and up to this time the state committee on public service information has presented the most successful and promising vehicle for that service.

The Committee on Publicity, a sub-committee of the Accident Prevention Committee, desires to receive from our members information of any kind relating to accident prevention work. Kindly send such information to Mr. J. P. Pulliam, Wisconsin Public Service Corp., 559 Marshall St., Milwaukee, Wis.

A New Publication

THE PACIFIC GAS AND ELECTRIC COMPANY, second largest gas and electric company in the United States, has launched a new publication, somewhat unique in the annals of the public utility business, through which it will tell its story in order that the public it serves may know and understand its purposes, its accomplishments, and its policies.

This company serves 2,157,000 people in thirty-eight of California's fifty-eight counties, or over fifty per cent of the state's population. Eighteen gas plants are operated in the principal cities; 3,608 miles of main are used in distributing gas approximately the distance between San Francisco and Key West Florida.

P·G·and E·Progress

Published by the Pacific Gas and Electric Company
A California Corporation, Owned, Operated and Managed by Californians

Vol. 1. SAN FRANCISCO, MARCH, 1924 No. 4

Sacramento's New "Gold Days"

(Photographs by courtesy Sacramento Chamber of Commerce)

GLIMPSES OF SACRAMENTO: 1. California Life Building. 2. On the River Front. 3. Capital National Bank. 4. World's Largest Almond-Shelling Plant. 5. State Capitol. 6. Part of Plant of California Packing Corporation.

Supply-Center Triples Factory Output in Three Years

"Days of gold" have come again to Sacramento, great supply center of the camps of '49.

Mines richer than those that once called to all the world add to her wealth. Factories and railroads and a hundred varied industries heap up the measure, and so many are her marts that merchants now speak of her as "the corner-store to a half million people."

In 1920 the census-takers counted 61,000 people in California's capital city. Today the population numbers about 90,000. The hundred thousand mark will soon be passed.

Rapidly Sacramento is becoming one of the important industrial cities of the Pacific West, this because it has all of the six basic conditions that spell constant advance. And these six are:

Accessible raw materials.
Transportation.
POWER.
Labor.
Factory sites.
Available markets.

Because of those conditions the output of Sacramento's industries grew 100 per cent in three years. Last year's output rolled up a total value of $100,200,000.

Supplying the needs and handling the products of one of the world's great valleys while holding fast to the mountain trade that has been hers since gold was discovered in California, Sacramento is the commercial center of 23 counties. Her tributary territory comprises 43,412 square miles, with a trade population of 523,000. To handle this great volume of business, Sacramento has 250 wholesale

(Continued on next page.)

The front page of the March issue.

This progressive company, which was the pioneer in the long distance transmission of gas, was also the pioneer in the customer-ownership plan for sale of company securities. The latest available records show approximately 65,000 holders of the company's securities, 40,000 of whom are residents of the state of California.

In the first issue of this publication, known as the "P. G. and E. Progress," Wigginton E. Creed, president of the company, outlined its purpose when he said:

"With this issue, the 'P. G. and E. Progress' makes its initial bow to the public and announces its regular appearance in the future.

"The 'P. G. and E. Progress' will be published by the Pacific Gas and Electric Company as a routine of company operation for the mutual benefit of the company and its many, many thousands of customers and owners.

"The aim of the company has been to win the public good will and be deserving of the public good will. To this end, the company has intelligently developed the gas and electric industries to meet the prodigious growth of a vast section of the State of California, and in that work, service to the public has been its watchword. To this end, the company will never hesitate to speak up and tell its story in order that the public it serves may know and understand its purposes, its accomplishments and its policies.

"The 'Progress' is put forth as a natural and logical development of the old and tried policies of the company. It will be primarily a journal of fact. It will record the growth of the state and the territory the company serves, the growth of the hydro-electric industry, the development plans of the company—the problems involved in building the commonwealth of destiny.

"It will present the facts involved in financing and operating the great gas and electric industries, and any and all other facts which may prove useful and serviceable to the public.

"In short, the 'Progress' pledges itself to be an authoritative source of accurate information for the public."

The "Progress" will have a circulation of 480,000 copies. It will be mailed monthly, or oftener, as the occasion warrants, to the company's customers.

Hands Across the Sea

America has no monopoly of political football. At the annual meeting of the stockholders of the Commercial Gas Company in London, February 21, the Chairman, Mr. W. G. Bradshaw, said:

"An experience of many years leads me to say that the attempts of local authorities to harass public utility companies (often made merely for electioneering purposes) almost inevitably result in loss to the consumers whose interests the local authority is supposed to protect. Tranquility and freedom from outside interference are required for the success of all industrial undertakings, and gas companies are no exception to the rule. Moreover, under the working of the sliding-scale, what is good or bad for the shareholders is also good or bad for the consumers, for their interests are identical."

Blaming It On Gas

A WELL-KNOWN executive in the gas industry writes to Headquarters as follows:

"It is an unfortunate thing that today the newspapers have come to call a lot of dissimilar and utterly unrelated matters by the one term 'gas.' If someone's furnace is cracked and the house is prevaded with the products of combustion from coal, that is 'gas.' If some fool runs his car into a closed garage and gets in trouble, that's 'gas.' If an explosion or fire or asphyxiation arises from any of the lighter hydro-carbons—gasoline, benzol, etc.,—that's 'gas.' And so on."

Whereupon our correspondent says: "This is one of the things we will have to thrash out with our newspaper friends."

He's right. Headquarters has tried to do it for its members and has failed. It is all a matter of personal or business contact between the gas man and his newspaper editor or publisher. Ninety-nine out of every hundred newspaper men practice the square deal and when their attention is called to the harmful effects of a misuse of the word "gas" they will stop using it. But they won't do it because an association in New York City asks them to, when the local gas man hasn't made the request himself.

To illustrate. Last year one of our members in the middle west sent in a clipping of a gasoline tank explosion, with the word "gas" played up in big type in the headline. He asked us to write the editor and tell him the inference drawn by a hasty reading of the headline was that the gas company was in the wholesale murder business, although it had nothing to do with the accident. Taking it for granted that the gas man in question had spoken to the editor of the paper about the article and wanted us to back him up, we wrote the editor.

Here is the letter we received:

"We can't understand why your Association is so excited about the damaging effect of the headline in our story on the 'gas' explosion. Your local gas man evidently thinks it is all right. He hasn't spoken to us about it."

Later on the gas man did see the editor and the word "gas" has never been maligned since in that particular paper. A simple request and the thing was done. But the simple request is made all too infrequently, or there is a poor contact between the utility man and the newspaper man, and the headlines continue to slam the industry with no conscientious attempt made to stop the practice.

In the large cities where the metropolitan papers have several men at the copy desk who edit the copy and decorate it with headlines, a memorandum has to be written and passed around so everyone can see it. But this isn't anything unusual for the editor to do. He does it for many of the merchants who advertise in his paper and for many other individuals who do not advertise but who are only asking for a square deal. Why shouldn't he? He will do it for the gas company, too, if the company wants it badly enough and makes its request in a friendly manner.

The members of the gas industry could with profit to themselves and to their business get on closer terms of contact with the newspaper men in their localities. How far we have yet to go in this direction is illustrated very convincingly by the misuse of the word "gas" in headlines and elsewhere.

MANUFACTURERS SECTION

G. W. PARKER, Chairman — E. E. BASQUIN, Vice-Chairman

C. W. BERGHORN, Jr., Secretary

MANAGING COMMITTEE—1924

AARON, C. T., Boston, Mass.
ABBOTT, M. E., Taunton, Mass. (Gas Sales of N. E.)
BARTLETT, C. E., Philadelphia, Pa. (New Jersey)
CRANE, W. M., New York, N. Y.
DEHART, J. S., Jr., Newark, N. J.
FAIRCHILD, S. E., Jr., Ambler, Pa.
FOWLER, W. M., Philadelphia, Pa.
GRADY, S., Philadelphia, Pa. (Pennsylvania)
GREENE, J. J., New York, N. Y.
HOBBS, G., Toronto, Ont., Canada. (Canadian)
KING, T., Pittsburgh, Pa.
MCCULLOUGH, CHARLES, Milwaukee, Wis. (Wisconsin)
MCDONALD, DONALD, New York, N. Y.
MCILHENNY, J. D., Jr., Philadelphia, Pa.
NORMAN, E. A., New York, N. Y.
NORTON, ARTHUR E., Boston, Mass. (N. E. Gas Eng.)
PARKER, JOHN F., Rockford, Ill. (Indiana)
RAMSBURG, C. J., Pittsburgh, Pa.
ROPER, G. D., Rockford, Ill. (Illinois and Iowa)
SEIDENGLANZ, C. H., Pittsburgh, Pa. (Southwestern)
SMITH, W. L., Battle Creek, Mich. (Michigan)
STITES, TOWNSEND, Gloucester, N. J.
STOCKSTROM, A., St. Louis, Mo. (Missouri)
WHETSTONE, W., Philadelphia, Pa.
WILSON, H. A., Newark, N. J.
WOLFE, A. McW., Baltimore, Md. (Southern)

CHAIRMEN OF SECTIONAL COMMITTEES ORGANIZED TO DATE

Exhibition—GEO. W. PARKER, St. Louis, Mo.

Nominating—F. A. LEMER, Kalamazoo, Mich.

Division of Accessories Manufacturers—H. A. WILSON, Newark, N. J.

Division of Apparatus & Works Manufacturers—S. F. FAIRCHILD, Ambler, Pa.

Division of Gas Range Manufacturers—CHAS. T. ARON, Boston, Mass.

Division of Heating Appliance Manufacturers—THOMSON KING, Pittsburgh, Pa.

Division of Industrial Appliance Manufacturers—WALTER WHETSTONE, Philadelphia, Pa.

Division of Lighting Appliance Manufacturers—TOWNSEND STITES, Gloucester, N. J.

Division of Meter Manufacturers—J. D. MCILHENNY, Jr., Philadelphia, Pa.

Division of Office Labor Saving Devices—E. A. NORMAN, New York, N. Y.

Division of Water Heater Manufacturers—W. M. FOWLER, Philadelphia, Pa.

Division of Supply Manufacturers—J. J. GREENE, New York, N. Y.

The Gas Company as a Merchandiser

More Effort—More Sales*

JOHN J. QUINN, Vice-President, Citizens Gas Light Company, Quincy, Mass.

THE GAS COMPANIES of the United States should be regarded today as leading specialty merchandisers, particularly in the field of home comfort and labor saving devices. Even the great engineering accomplishments of this industry should not overshadow this marketing ability for which we should be noted. Both achievements should be identifying marks of the progressive policy under which this industry is living and growing.

Every requisite for the occupation of such a high and enviable position in the sphere of commerce is to be found available to practically every such utility organization. Time has apparently shown the wisdom of appliance merchandising by the gas companies of our country so that any discussion from this angle seems superfluous. If it is true, as will be shown, that there is available to each gas company all the basic necessities for leadership as the premier salesman in this broad field, then the obvious need is for a determination of why we are not so regarded by others and why we confess to ourselves that this ideal accomplishment is a vision and not a reality.

Utilities Have Adequate Credit

Gas companies in general are in a sound financial position today; their credit is good. They are able to purchase the necessary goods for resale. The great majority of them believe it to be sound merchandising policy to sell their goods on a small initial payment with

*Paper delivered before the N. E. A. of Gas Engineers, February 13, 1924.

convenient monthly installment payments extending from four months to a year and a half's time for the balance of the purchasing price. This is essential in this modern era.

The merchandise that it should be our function to adequately distribute consists of many articles all of which are needed in a sizeable number of the homes and business places in every community.

Many gas appliances that apply more directly to industry and business will some day be sold in something like worthwhile quantity; for the limits of this discussion, however, reference will more directly be made to that part of our available line that contains several household appliances that are great contributors to home comfort. For this reason these will find the largest and most receptive market readily available and unquestionably accessible. Of appliances in this class there will be found a great variety of types, all of standard construction, and manufactured by reputable, well-known concerns.

Assistance Available

Having the financial strength necessary, the proper merchandise and market, consider the many available helps at hand to insure our success in this enterprising, productive game.

Five years ago, very little if any concrete merchandising help was to be had from either of the great national sources from which today any gas company can draw without reservation. Consider these effective agencies and their contribution to the assured success that will be ours if we but have the will to do and make the perservering effort that will assure more sales and greater prestige.

The National Advertising of Manufacturers

First of all, you find an interest in quality gas merchandising that has been largely developed through the national magazine advertising now being carried by several manufacturers. Following this up, many appliance manufacturing concerns are doing district newspaper advertising, thus assuring a tying-in with the messages appearing in well-known national publications. This groundwork or foundation is being laid without expense to the gas companies. It is something having such far-reaching possibilities that it should be seriously considered and backed up by the active cooperation of all gas companies.

In very recent years the extensive use of simple, effective direct-by-mail campaign material, coupled with material for the convenient forming of local newspaper follow-up advertising, is a merchandising help provided by the manufacturers, to the smallest gas company and the largest alike. Where this material has been used it has proven its great value by showing direct and invariably satisfactory results. In fact, in several instances you might call the results obtained startling and spectacular. Such campaign material is all of the highest order. It is prepared by expert advertising and merchandising specialists and is the result of careful study of actual trial or test cases. The plan of such campaigns has been so accurately assembled that it is usually possible to give definite assurance of the results to be expected, previous to its use.

To complete this assistance that is available on a national scale from appliance manufacturers, there will be found all the convenient accessories such as display cards, demonstration models and high grade descriptive literature. In many instances, direct sales assistance in each local territory will be provided both

for actual selling work and the training of local company salesmen.

The A. G. A. Merchandising Service

The second national merchandising service that supplies further needed assistance to the gas company merchant is the American Gas Association. Here again the help of professional merchandising authorities is engaged in assuring the correct technical procedure and physical make-up of the various forms of assistance coming to all gas companies through this representative association.

Through the Commercial Section committee there is prepared a Sales Stimulation Bulletin giving seasonable and timely sales suggestions, including window decoration ideas. Next a monthly advertising service giving suggested copy and matrices. Under development at this time is a still more comprehensive merchandising service, from this same source.

Contributing to and guiding this national work are nearly all the practical and successful merchandisers in the gas industry, together with all the successful appliance manufacturers. Should not the stupendous accumulation of tried and proven sales plans thus available mean untold progress to every company that believes the prize to be worthy of the effort?

Gas Companies' Advertising

Beyond all this, most of the larger gas companies have their own specialized advertising department or outside advertising agency to assist in stimulating sales activity in their given territory. In New England we have that great medium of stimulation and the meeting place for the frequent exchange of ideas, the monthly dinner meetings of the Gas Sales Association. Does not all this prove the assertion that the gas company, as a merchant, should be a force not alone of consequence, but a leader, in the specialty merchandising field; an inspiring example of an industry that realized its possibilities, developed the necessary sales assistance and is now utilizing all these assets to the fullest, so that each year may find more worthwhile fuel and labor saving appliances being marketed through its organizations in the quantity that the circumstances developed then demand.

So much for our assets, potential possibilities and the enviable pinnacle to which these should lead. If there has been developed so ideal a field and so much of assistance toward adequately placing our merchandise in this field, there must be some sizeable number of organizations who have something of the true merchant in their make-up. Granted this to be so, there still remain altogther too many who fail to measure up to the high standard that good merchants have set.

Why Many Are Not Good Merchandisers

A survey of the New England companies leads to one real outstanding reason in which is probably summed up the most common and frequently given alibis for inactivity or mediocre activity. The conclusion is simple, plain, unmistakable. It is a decided lack of effort; an absence of enthusiasm; some misdirected effort, which is generally a result of these two former troubles; finally sales advertising or publicity that is presented from the wrong angle. In the last analysis, however, it is not the mistakes that we make that in general are holding back our progress, but simply a lack of effort, a habit of letting someone else do it, of listening to this someone tell of his accomplishments and effort, then

very complacently forgetting all about it, so that the trials of working out the accomplishment will not interfere with our otherwise tranquil existence.

The Pay Incentive for the Sales Force

This lack of effort has many ramifications. Under this classification you will find the company that has not an adequate pay envelope incentive for its sales force. This is of first importance for it is by the amount of material remuneration that interest is first held. It takes a genuine effort to work out a fair and adequate payment plan for the people who must directly present and handle the sale.

Many sales forces are satisfactorily maintained under widely differing plans, with commissions that vary as does the wind. Each company must work out the plan best suited to local conditions. But remember, some fair and adequate plan must be adopted before you can be successful. The matter will not become satisfactory unless initiative is displayed and action taken.

Take the company without any sales force. The manager will give you a supposed-to-be good and logical statement as to why things in this connection are thus drifting. It sounds convincing but when you look back a few years or so you will probably find, if the company is of medium size, that there was trouble with a then existing force and when the war came and went, it took with it the troublesome, improperly managed sales force. Ever since there have been so many good reasons for not attempting a resurrection of the bothersome body, that the needed effort has simply not been made.

How It Has Been Done

Maybe a few actual happenings will further emphasize the point that lack of effort and not lack of merchandise or absence of good sales plans is the cause of retarded progress. Here is a company operating in a city of 15,000 population, having 4300 meters. Their total sale of gas ranges for 1922 numbered 47 and of tank water heaters only 24, with no automatic water heater sales. During the same year, in a nearby city, a company with 3500 meters sold 179 ranges and 158 tank heaters. Both companies provide service to what are commonly termed, mill cities. The general conditions under which they operate are similar. In the first case there was no effort made to sell; no soliciting or advertising worthy of these names. In the second case the company used two of the direct-by-mail campaigns supplied by an appliance manufacturer and at a cost to this gas company of less than $100 for postage, plus a little incidental labor in running the circular through their addressing machine, plus a good amount of enthusiasm and human interest, obtained this creditable result.

During March of 1923 several of the larger New England companies campaigned in a similar intensive manner; one organization sold 500 ranges in this month and two others about 400 ranges each. Just two other illustrations of what properly directed effort will do. On the same plan of sales approach, but in September rather than the spring, a company serving 13,000 meters sold 182 ranges that month. From September 8 to 29, 1923, a company having about 25,000 meters sold 337 ranges. In the case of larger companies, an adequate amount of newspaper space was used in addition to the mailing folder and the floor display and house-to-house solicitation was of a high order. This all tends to show conclusively that our customers are responsive, the merchandise we have

is saleable and that results can be obtained that will fully justify the effort made, irrespective of the season, broadly speaking.

A Variety of Appliances Available

All these illustrations have concerned ranges and tank water heaters. They need not stop there. In most cases you will find the same conditions holding forth as regards other gas company merchandise. The companies who sell ranges and tank water heaters in worthwhile quantity will generally sell lighting equipment, room heaters, automatic water heaters, garage heaters, laundry equipment and all the smaller sundry merchandise, in some such proportionate way. These might seem like glaring examples but they are truly but random cases. You can go down through the list of New England gas companies and find the same diametric conditions; one selling, the other giving reasons but not the real reason for their lack of selling accomplishment.

Just think a minute of what has been done in many organizations with the sale of two popular articles, room heaters of the radiant type and semi-indirect lighting fixtures. The annals of this association's last annual convention, record what has been done in these very recent years with the sale of semi-indirect lighting fixtures. The right kind of effort is today selling this adequately priced merchandise in quantity. It means effort; for that reason alone, in many cases, there is concession to the other fellow that should not be made. Because the game has become harder, is no adequate reason for a complete surrender.

Consider the radiant type heater for one moment. The companies that started aggressive selling of this appliance about three years ago have today surprised themselves with the accomplishment. Here is an auxiliary heating appliance, that sells on a near price par with the constantly used range. Does it sell in quantity as a result of effort? Let me cite one concrete example, not by any means a spectacular case, but one in which the correct prescription was used. With no effort made for the year 1918—sale of radiant heaters, 3. The next year, with the initial effort, 95; next year, 98; then 1921, sales 130; in 1922, with effort plus a coal shortage, sales 260, and in 1923 with effort but no coal shortage, sales 226.

No plan, however good, is better than the human element back of it. If there is an absence of human understanding, a lack of genuine feeling, a vacancy where there should be unlimited ability to visualize, then you cannot expect merchandising success.

Warmth, sympathetic understanding and deep abiding interest in the proposition offered, as well as in the men and women who must directly present the plan, are axioms in this consideration. The gas industry must inspire its men and women, from the highest official to the least of its workers. Then the success atmosphere, that is admittedly lacking in many organizations, will be promptly generated and forever maintained. This industry should be recognized as a leader in every branch of its most diversified calling.

The Effect of Bad Advertising

Just a word about improperly conceived publicity, or badly executed advertising, as a stumbling block to our merchandising progress. Besides wasting money in this way, immeasurable harm is done in a much more far-reacting and important way. Remember at the outset, in our public utterances, the world is only interested in our accomplishments or offers, in so far as these directly benefit

and concern the world as an individual. So often the proposition is staged from our viewpoint and not from the viewpoint of the person we hope to interest. It is easy to recall the plea that has often been made in an attempt to induce so-called off season purchasing. "Our men are without work to do; won't the charitably inclined place their orders now. We must have the business or lay off the men." That is not such a great exaggeration as it at first might seem. You can get the reaction; the decidedly bad inference that gas appliances are only seasonably used; that gas is considered an auxiliary fuel.

Further and more far-reaching from the permanent psychological effect by such a plea, a question of the financial stability of this industry is unconsciously raised in the public mind. It is not big or substantial enough to carry on through dull months as through active and prosperous times, with personnel and service unimpaired; ready, as we claim to be, for any emergency at any time. Such an inference is untrue, but if the public thinks the facts to be overdrawn they must conclude that we are not truthful advertisers. The most liberal offer finds few takers when the statement is thus presented. If you want the business at an off time of the year, make a real inducement and tell your public that it is to their decided financial benefit to buy then and there. The results will then be worthwhile from every viewpoint. Remember when it comes to the printed word, the cost is the same be the message correct or incorrect. The results that will be obtained are directly proportionate to the correctness of both message and method.

Sales Standards Needed

Now for a recommendation that it is felt by some in this association will assist in hastening our arrival at the merchandising goal that it seems plain this industry should reach.

In every branch of the gas business except in the appliance sales department there are definite records of performance; standards of comparison. Because of the many intangible factors to be considered nothing has been done to establish scientific sales standards.

Every sales attempt has been directed solely toward bettering the record of the previous year. Whether such records stand for worthwhile accomplishments or not is unknown in anything like a definite way. Bogies, where used, are set on this basis of bettering last year's record. Whatever little incentive that may be generated by comparison of one organization with another is measured by this past performance rather than by any accurately estimated present or future possibilities. It is not known how many appliances of a given kind should be considered as a standard for sales, in companies similarly situated as to population served, meters in use, geographical location and the like.

The feeling exists that there is some ground upon which to build a fair and adequate standard that would eventually prove a decided help in the proper conduct of merchandising departments. For example, it would be an advantage to company officials to have some recognized uniform basis upon which it could be determined what the sale of a given appliance should yearly amount to, as perhaps some definite percentage of sales, to meters in use. It is easy enough at present to know what this percentage has been for any given period, but the figure does not indicate good or uniform merchandising.

A nationally known rubber goods concern has by analysis determined what to

them seems an accurate appraisal of their market. They have also determined that it is not good policy for them to attempt to obtain more than 31 per cent of the possible business to be had from this market. On this basis they have been successful over a period of years in controlling their production at a uniform daily maximum, while their selling policy has been so formed as to make possible the uniform distribution of their products through good years and years not so good.

Such factors as these would probably serve in arriving at uniform standards for appliance sales. The life of a given appliance, both from the standpoint of actual deterioration, as well as from obsoleteness, could be agreed upon. Improved construction and facilities should play their part in determining when appliances should be replaced. The rate of growth of companies in similar localities would no doubt provide a factor. The yearly increase in the number of given appliances used in various localities would serve as another figure in the equation. This latter information might not be so readily obtained, although it does not seem to be in the realm of the impossible. The exact factors to be considered and the business engineering procedure to be followed are not within the scope of this discussion. The thought seemed to have sufficient merit however, to warrant its inclusion as a progressive suggestion, worthy of some adequate investigation.

If it appears to have helpful possibilities, enough to warrant official consideration by this association, then the matter might wisely be referred to a committee for investigation and recommendation. The result of such study might bring forth much information that would greatly contribute to the more scientific conduct of our merchandising activities.

This Year Is the Time to Start

If this industry has the potential possibilities of a great merchandiser, let the determination go forth to each company to do something definite this year toward gaining the prestige that our calling demands. Let each organization study the merchandising angle of this business. It will be found fascinating. Its productivity will not be negligible. The companies that become most proficient in merchandising, are guaranteed to render the best possible all around service to all of their customers. This is a simple, unmistakable conclusion. Successful merchandising can only become a reality with an adequate backing of first quality service. Real service is essential in order to have appliances work properly. By good service you make friends and materially assist in making these friends good customers.

Let a resolve be taken by all gas companies and especially by those who fearlessly admit to themselves their deficiency, that they will do something this year that will make their sales departments more worthy of their name and function. Make an analysis of territories. Let every company whole heartedly adopt some of the direct-by-mail and auxiliary newspaper campaigns that will cheerfully be provided by several prominent manufacturers.

This direct-by-mail material is the simplest and undoubtedly the most satisfactory means by which good results can be promptly obtained. It is inexpensive to use, yet gives positive assurance of a complete distribution of your message to the people you wish to reach. It can be put into circulation with the least possibility of lost motion.

No company can be too small for this material to be effective. Large organizations will find its use equally productive of sales. Back such mailings up

with as much newspaper advertising as your budget will permit. Complete the job by a thorough, house-to-house sales canvass. The result will surprise and please everyone concerned.

Keep a live demonstration of all gas appliances on your sales floors. Put the toaster, waffle irons, laundry irons, ranges, water heaters, radiant heaters, laundry equipment and everything else to work, out in public view where the people can see and be shown.

Go into Home Economics work whereever possible. Take the lead in any cooperative advertising possibilities that arise between various co-related interests. Do all these things, keeping in mind constantly that merchandising means selling at a profit. Sales departments while generally operated with this end in mind, do not always hold to this principal. As an official of one of the largest gas companies recently said, "You can't merchandise at a profit in this business, on small wares."

The real worthwhile home comfort appliances must be sold in quantity to take care of the sizeable sales department overhead that our field and position demands. Remember, action, or the lack of it, is the thing that will decide our future position in the merchandising world. One good sale will produce another. Let's go, and keep going!

A. G. A. Membership

At the time of our last convention the Association membership stood as follows—

Holding Companies	17
Gas Companies	503
Manufacturer Companies	265
Individuals	2209

At the time of going to press, a similar statement would look somewhat as below—

Holding companies	16
Gas Companies	510
Manufacturer Companies	270
Individuals	2466

Applications for company or individual memberships received subsequent to April 1st and covering membership for the balance of the Association's fiscal year, ending September 30th, will be accepted on the basis of a half year's dues. This applies to all applications.

INDUSTRIAL GAS SECTION

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C. W. BERGHORN, Jr., Secretary

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VITTINGHOFF, H., Boston, Mass.
WATSON, H. E. G., Toronto, Can.
YEATON, G. D., Providence, R. I. (Gas Sales of N. E.)
YOUNG, A. W., Knoxville, Tenn. (Southern)
YOUNG, R. R., Newark, N. J. (New Jersey)

CHAIRMEN OF SECTIONAL COMMITTEES ORGANIZED TO DATE

Convention Program—F. F. CAULEY, Chicago, Ill.
Cooperation with "Industrial Gas"—N. T. SELLMAN, New York, N. Y.
Educational—R. R. YOUNG, Newark, N. J.
Industrial Booklets—
Combustion—H. O. LOEBELL, New York, N. Y.
Hotel & Restaurant Uses—J. P. LEHNROTH, Newark, N. J.
House Heating—E. D. MILENER, Baltimore, Md.
Large Volume Water Heating—W. T. RASCH, New York, N. Y.
Steam Boilers—H. VITTINGHOFF, Boston, Mass.
Wholesale Baking—H. M. HENRY, Pittsburgh, Pa.
1000 Uses for Gas—H. H. CLARK, Chicago, Ill.
Ceramics—C. C. KRAUSE, Baltimore, Md.
Drying—J. ZANDOR, Chicago, Ill.
Food Products—E. J. STEPHANY, Pittsburgh, Pa.
Forging & Heat Treating—W. D. THOMPSON, Hammond, Ind.
Soft Metal Melting—W. M. HEPBURN, New York, N. Y.
Tank Heating—OSCAR BOWEN, Chicago, Ill.
Nominating—F. F. CAULEY, Chicago, Ill.

Big Business Turns to Industrial Gas*

COSTS ARE always of vital importance to manufacturers. It is only by means of an accurate system of cost accounting that they are able to price their products at just the right point. Most manufacturers are in a highly competitive field. Their prices must compare favorably with their competitor's prices. Prices below the cost of making lead to bankruptcy. There is a happy point midway and the cost of manufacture is invaluable in determining this point.

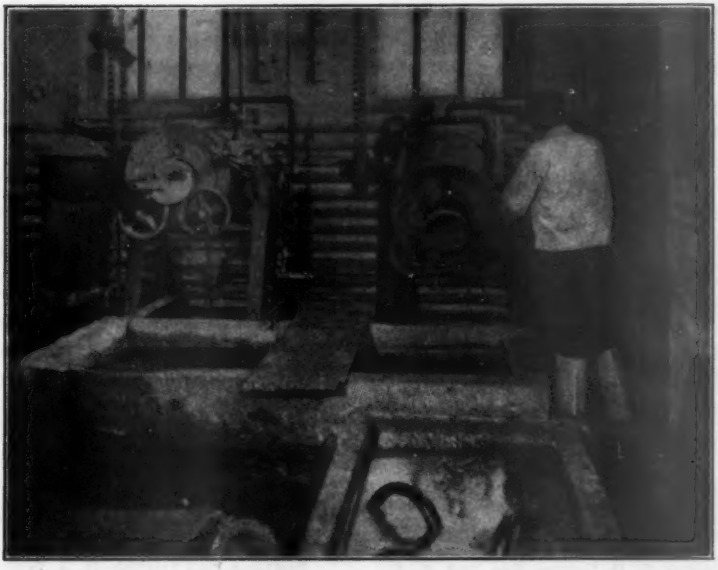
B.t.u.'s on a Dollar Basis

"Gas is Cheaper" says the slogan. "But how can that be?", says the manufacturer who has never used gas in any of his heating operations. "Seventy-five cents worth of gas contains 535,000 units of heat, seventy-five cents worth of coal contains 1,125,000 units and seventy-five cents worth of oil, 1,260,000." If this was the "Final Analysis"—B.t.u.'s per dollar—it would be obvious that no manufacturer would ever consider industrial gas.

The Real "Final Analysis"

Plant executives, everywhere, know full well that B.t.u.'s per dollar is in no sense a fair comparison of fuel costs. "It is not what a fuel costs—but what it costs to use it." There are any number of cases on file where the cost of the fuel is of the least consideration. Even though a "crude-fuel" were presented as

*Reprinted from the Peoples Gas Club News.



Two rotary gas-fired carburizing machines

a gift—the cost of using it would make its use prohibitive.

One of Chicago's steel treaters recently desired to purchase new gas-fired equipment for hardening steel machine parts. The purchase involved considerable money and quite naturally they were interested in an investigation as to the advisability of making the purchase. Another large manufacturer turning out 32,000 different metal machine parts had been using similar equipment and consequently was questioned as to the performance of these particular gas-fired carbonizing machines.

The Reply

The following report was prepared without the aid of solicitation of the gas company. Among its many interesting features it clearly shows that though the cost of the fuel were entirely left out of the consideration—gas, is by far, the cheapest of the two sources of heat mentioned.

Comparison of Furnace Costs—Fuel

2½ gallons oil per hour; average for 10 hours.

2740 cubic feet of gas used over a period of 10 hours and fifty minutes.

Oil	Gas
$1.38	$2.36

Labor

Packing, loading, unloading, luting and quenching.

Oil	Gas
$1.51	$0.44

Carbonizing Material

Under former practice when oil was used, 45 lbs. of new material and 45 lbs. of old material at a total cost of $3.72. This is greatly reduced when gas is used. Only 4½ lbs. of old material being used and 4½ lbs. of new at a total cost of 38¢.

Oil	Gas
$3.72	$0.38

Cost of Clay

Clay for twelve boxes.

Oil	Gas
$0.03	$0.00

Deterioration of Boxes

Boxes last from 20 to 25 heats. No boxes required when gas is used.

Oil	Gas
$2.88	$0.00

Total Cost

Oil	Gas
$9.52	$3.18

Number of Shafts Carbonized

Oil	Gas
144	200

Total Cost Per 100 Shafts

Oil	Gas
$6.61	$1.59

(The above comparative cost sheet covers the costs of hardening the surface of steel shafts approximately 1 inch in diameter and 12 inches in length.)

This Comparison is Typical

Such a comparison is typical of these rotary gas-fired carbonizing machines. These favorable comparisons are not confined to steel treating. Not long ago we printed in this publication, data relative to the enameling of cast iron and sheet steel with gas. The total cost of producing 100 sq. ft. of enameled ware with coal was $1.50; with gas, $0.34.

Analyze any of these cost sheets published from time to time and you will see just why gas is cheaper. Selling gas to the large industrials is principally a matter of studying the processes, discovering not the cost of the crude-fuel, but what it costs to use it. Point out to the customer the comparative costs and his own conclusions will successfully finish the sales work. It is largely a question of educating the public. These comparative cost sheets, in the final analysis, are of tremendous value in this "educating process."

A 75-Year Record

WE QUOTE FROM the annual report of the Board of Directors to the stockholders of the Providence Gas Company, Providence, R. I., for the year 1923.

"On December 9, 1923, our company completed 75 years of continuous service to the city of Providence. During that period gas was never turned off in the city even for an instant. We believe this to be the only instance in the city of such continuous service, days, nights, Sundays and holidays, for 75 years.

"During the latter part of this long period the increase in consumption of gas by our customers has been very rapid, as is illustrated by the fact that we have produced as much gas during the last twelve years as was produced in the previous sixty-three years.

"Ever since electric current became available for general use it has been thought by some that the gas industry must show a rapid decline. This opinion has no foundation in fact. The gas business all over the country is growing more rapidly than at any period of its history. We believe it will continue to increase and that our company will enjoy its full share of the growth."

This is a service record typical of our entire industry and the optimism that every gas man feels and knows is based on the facts of the case.

A Hotel Installation

Part of the main battery of ranges.

Total hotel sections installed—20.

Other appliances such as broilers, stock kettles, ovens, etc., also installed.

Average annual consumption—10,000,000 cu. ft.

Hospital Culinary Equipment

Main battery of ranges.

Other appliances also installed, such as bake ovens, broilers, etc.

Average annual consumption—6,500,000 cu. ft.

Heat Treatment Definitions

THE FOLLOWING definitions have been approved by the Recommended Practice Committee of the American Society for Steel Treating.

1. ANNEALING. Heating above the "critical temperature"* followed by a relatively slow rate of cooling.

2. LONEAL.** Heating below the "critical temperature" followed by any rate of cooling.

3. NORMALIZING. Heating above the "critical temperature" followed by an intermediate rate of cooling.

(Note)—In good practice, the heating is considerably above the "critical temperature."

4. SPHEROIDIZING. A long time heating at or about the "critical temperature" followed by slow cooling throughout the upper part of the cooling range.

(Note)—For the purpose of spheroidizing the cementite in high carbon steels.

5. HARDENING. Heating above the "critical temperature" followed by a relatively rapid rate of cooling.

6. TEMPERING. Reheating, after hardening, to some temperature below the "critical temperature," followed by any rate of cooling.

7. CARBURIZING. Adding carbon, with or without other hardening elements, such as nitrogen, to wrought iron or steel by heating the metal below its melting point in contact with carbonaceous material.

8. CASE HARDENING. Carburizing the surface portion of an object and subsequently hardening by suitable heat treatment.

9. CYANIDING. A specific application of carburizing where the object, or a portion of it, is heated and brought into contact with cyanide salt.

*By "critical temperature" is meant that temperature which is customarily associated with the following phenomena: a—Hardening when quenched. b—Loss of magnetism. c—Absorption of heat. d—Formation of solid solution. e—Pronounced refinement of coarse grain upon cooling.
**A new term.

The Committee on Cooperation with Educational Institutions calls attention to a letter received from Mr. Allen Rogers, Supervisor of Course in Industrial Chemical Engineering, Pratt Institute, Brooklyn, N. Y. A class of selected young men will be graduated on June 19th and will then be available for employment. It is hoped that any of our members in need of young men equipped with the fine training that that Institute affords will get in immediate communication with Mr. Rogers. The Pratt Institute offers a two-year intensive Industrial Chemical Engineering course of well demonstrated efficiency.

COMMERCIAL SECTION

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LOUIS STOTZ, Secretary

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COBL, WILEY, F., St. Louis, Mo. (Missouri)
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CRANKSHAW, J. W., Allentown, Pa. (Pennsylvania)
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FUGATE, F. S., Detroit, Mich. (Michigan)
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JOHNSON, W. B., Toronto, Can. (Canadian)
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KING, THOMSON, Pittsburgh, Pa.
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McCONNELL, H. N., New York, N. Y.
PICKARD, B. F., Greensboro, N. C. (Southern)
PHENICIE, C. E., Green Bay, Wis. (Wisconsin)
QUINN, JOHN J., Quincy, Mass. (Gas Sales of N. E.)
RASCH, W. T., New York, N. Y.
SMITH, D. R., Baltimore, Md.
SMITH, W. L., Battle Creek, Mich.
VINCENT, G. L., Syracuse, N. Y.
WEISER, J. A., York, Pa.

CHAIRMEN OF SECTIONAL COMMITTEES ORGANIZED TO DATE

Architects and Builders Service—W. A. ADAMS, Chicago, Ill.

Commercial Policy—P. S. YOUNG, Newark, N. J.; CHAS. A. MUNROE, Chicago, Ill.; F. J. RUTLEDGE, Philadelphia, Pa.; R. B. BROWN, Milwaukee, Wis.; F. R. BARNITZ, New York, N. Y.

Home Service—ADA BESSIE SWANN, Newark, N. J.

Salesman's Manual—H. D. VALENTINE, Chicago, Ill.

Sales Stimulation—J. P. HANLAN, Newark, N. J.

The Monthly Sales Service to Start in April

AN ANNOUNCEMENT which will interest everyone engaged in business development and increased gas sales.

You will be glad to know that we have made definite arrangements with James F. Newcomb & Co., the Marketing Counsellors who will assist our Sales Stimulation Committee in preparing the Monthly Sales Service, *to go ahead at once*, rather than to wait until we have secured 1500 subscriptions, the original basis in which the plan was predicated.

We are planning to have the first issue of this Sales Service in the hands of subscribing companies on April 15 and monthly thereafter.

This is undoubtedly the most outstanding commercial activity we have ever attempted. This service will set up a definite program of sales activity in which every gas company in the country may and should, in fact, participate.

Every factor which has any relation or bearing upon increased sales of appliances and gas will be taken into consideration and covered in this service.

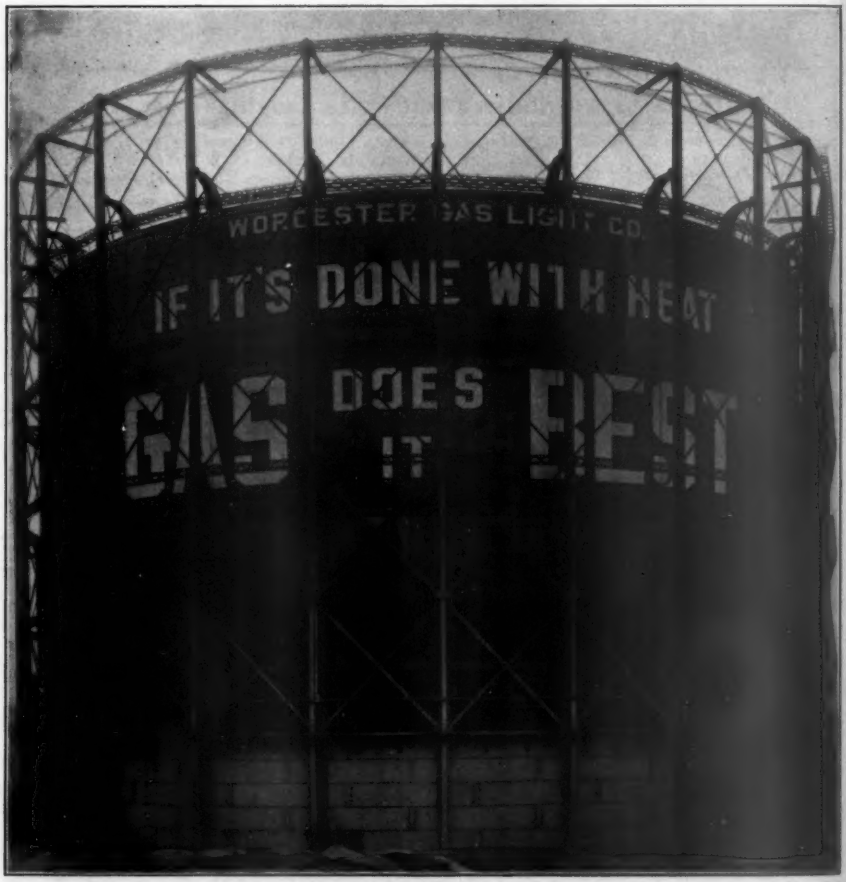
At this writing over 400 companies have subscribed. We believe that when the first issue is at hand our member companies will appreciate its work and in many cases will find it advantageous to place copies in the hands of everyone who has anything to do with the business development of the company.

We know that this service will fulfill a long-felt need in this industry and help establish merchandising policies which will put the sales activity of our business on a parity with the leading industries of the country.

Here's for a wonderful increase in the sale of appliances and a considerably wider use of our product—Sell your customers the idea that "If it's done with Heat—You can do it Better with Gas."

Note—1000 sets of the Sales Service will be printed—there are 700 sets subscribed for. The next 300 subscribers will receive the service beginning with the first issue, after which subscribers will receive issues beginning with the date of their enrollment.

* * *



How Worcester Uses Its Holder for Advertising

Co-operative Sales Promotion

V. E. BIRD, Vice-President, The Connecticut Profit Sharing Co., New London, Conn.

PEOPLE THROUGHOUT the United States are possessed of many divergent ideas as to just what is ethical in the conduct of different kinds of business. It is likewise true that a large percentage of the beliefs that are held are inherited rather than created from the sum total of today's experience. We have not passed from the age when a son votes with the same political party that was supported by his father and when a daughter holds to the same religious denomination that was the faith of her mother.

Just as the medical fraternity frowns on the physician who seeks to build a practice through advertising, so have the public utility companies viewed the matter of merchandising their products, whether the thing they have to sell is street car transportation or electric current and gas for household use. A new generation of managers appears to be accepting the idea that it is not only proper but beneficial to popularize the service they have to offer.

Good Will and Increased Sales

In addition there is the further thought that too little attention has been given by such corporations to the cultivation of good will. Some of the more representative companies in Connecticut have decided to increase their business by increasing the sale of electrical and gas appliances by closer co-operation with the retail merchants, which will have a strong tendency to hold business at home. Their managements have started with the primary idea that the basic principle of retail salesmanship could be applied successfully in their respective fields and their employes have been instructed that real service consists in giving the customer what he wants and not what the company wants to give him.

In keeping with their policy to give the lowest rates consistent with good service, the City of Norwich Gas & Electric Dept., Middletown Gas Co., The Connecticut Power Co., Eastern Connecticut Power Co., Central Connecticut Power & Light Co., Hartford Electric Light Co., The Lyme Electric Power Co., Borough of Groton Municipal Light Dept., Rockville-Willimantic Light Co., Essex Light & Power Co., Danielson & Plainfield Gas & Electric Co., Putnam Light & Power Co. and others, have inaugurated a system of merchandising based on a careful study of the psychology of the majority of customers. After thoughtful planning, these companies have adopted a selling policy based on the coupon plan somewhat similar to that used by the United Cigar Stores in stimulating merchandising sales.

The Coupon Plan Adopted

These companies enclose with each gas and electric light bill a token, exchangeable for thirty coupons, free if presented within the calendar month at the companies' office. This is done to secure a greater attendance in the companies' stores, as it is a well-known axiom that sales curves follow closely attendance curves in retail stores. Coupons are given to customers at the rate of one coupon for each 10¢ of merchandise purchased, and are redeemable in exchange, at authorized gas and electric shops, for all kinds of gas and electric merchandise at the rate of 1,000 coupons for each $2.00 of retail price. Furthermore these companies will accept Con-

necticut, Mutual and United coupons at their respective values as part payment on gas and electric merchandise.

In talking with Henry E. French, Consulting Sales Engineer, of Chicago, who laid out a similar plan for the Commonwealth Edison Co. in Chicago and the Consumers Power Co. in Michigan, the following ideas were gathered: "Many concerns are able to cultivate the good will of large customers by giving them a discount for cash payment; the 10¢ customer is just as valuable an asset, and with him the small discount is not practical." A coupon for a fractional amount, however, does secure the same results and gives the little fellow a similar sense of satisfaction in his dealings with the merchant. It is a definite fact that the good will of these companies has been greatly increased by the publicity obtained by this merchandising plan.

How It Works in Detail

As a legal means to the end, the public utilities formed The Connecticut Profit Sharing Company, which is owned by them. The Vice-President in charge of operation is Mr. V. E. Bird, General Manager of the Connecticut Power Company. His operating organization consists of a general manager and an assistant in charge of the salesmen, house-to-house canvassers, service men, etc. These salesmen sell the coupon idea to the retail merchants of the communities as a sales promotion service. However, the coupons are redeemable only in gas or electric merchandise.

It is a significant fact that the larger and more conservative banks in the cities where this service is used use the same service not only to secure new accounts but to increase their deposits of their present customers. The coupons used by the banks are also redeemable only in gas and electric appliances at the gas companies' especially authorized stores.

A Co-operative Movement

This method places a purchasing power in the hands of the public who otherwise would feel that such purchases would necessarily come out of the family budget and has a tendency to break down the sales resistance, particularly in securing the first payment on deferred payment sales. In other words, this is a co-operative move of the manufacturers who buy the advertising on the coupons, the gas and electric companies who distribute them and the contractor dealers and plumbers who are permitted to redeem them the same as the electric and gas companies. The plan has been well received by the public and the merchants in Connecticut, also in Illinois and Michigan, and has been in operation in some of the communities for about eight years.

It is not likely that everyone will agree that the big utility companies are following a proper course when they enter actively into the sales of appliances. However, it is difficult to deny that the greater the use of gas in any community, the cheaper will be the price. So let us look rather at the benefits derived, and wish that all public utilities would try to solve their problems by increasing their gross sales rather than by seeking a way out through a raise in rates.

Increasing Gas Sales Through the Architect and Builder

W. A. ADAMS, Chairman, Architects and Builders Service Committee

W. A. Adams

IT SEEMS TO THE WRITER that closer relations should be established between our companies and the architect and builder. Certainly there can be no question but that the sale of appliances will be more easily consummated if gas outlets, to which appliances can be attached, are provided at the time of building rather than making it necessary to run the piping on the surface of finished walls. This is a practice which is not only considerably more costly but altogether unsightly and generally unsatisfactory.

Too much stress cannot be laid on the fact that gas piping, which is one of the most vital mechanical advantages in domestic, commercial and industrial life, is at the same time the least expensive item that enters into the cost of the modern building. It would be not only better policy on the part of our companies, but it would indicate a sounder merchandising sense, if they devoted some time to securing adequate piping and additional outlets rather than spending money in advertising their wares and service only to find out later that they are handicapped because no outlets were provided or piping was of inadequate size.

The time to sell an idea is at the beginning of an architectural project. Obviously no better approach can be made than to impress upon the architect and the builder the fact that it is good foresight on their part to secure satisfied clients by specifying and having installed a suitable gas supply, the most efficient means of comfort and convenience. Considerable space has been given to our slogan, "You Can Do It Better With Gas," but surely the truth of that statement will be easier to demonstrate if the means of using gas are provided.

The sales of gas merchandise, which in 1923 amounted to $5.00 per meter, can without doubt be substantially increased through our closer co-operation with the architect and builder. Point out to the architect and the builder that to install adequate gas piping, the cost of which will represent only a small proportion of the cost of the building if done during the course of erection, would really be a compliment to their discretion and forethought because it means added convenience to the renter, a lower cost of appliance installation, and an assurance to the owner of a better renting property or a more easily saleable build-

ing in the event that the owner has built for investment.

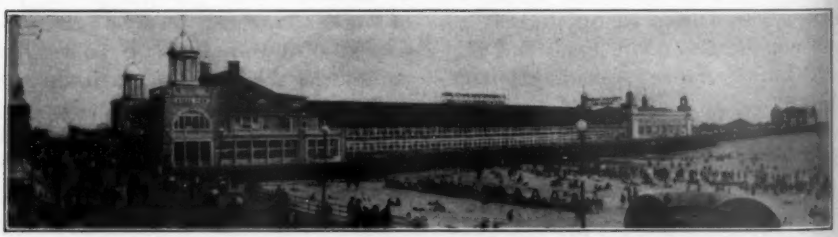
There are instances of industrial property remaining untenanted because gas piping sufficient to supply the gas demands of the prospective tenant, was not provided. In these days of the reinforced concrete type of building, such an oversight shows not only a lack of knowledge on the part of the architect and builder, as to what has been done in the way of advancement, in construction and design of modern gas appliances, but a deplorable lack of good judgment, because it puts their client to an enormous expense to pipe the building after it has been erected. If we continually bear in mind and point out that the cost of installing piping would be less than the loss sustained by having the premises vacant one month, we should have no great difficulty in having the necesesary piping and outlets that should be a part of the modern building included in the building specifications.

Personal contact is the best way to keep the architect and the builder informed of advancements in the development of appliances which will give the best results through proper combustion and effective control with a minimum fuel cost.

We should not be content with the increase in gas sales that have mainly accrued through a natural growth, which in 1923 results in taking 400,000 new customers. If installation costs can be lowered the elimination of competitive fuels will be more easily accomplished. And this will greatly assist what should be our constant effort—the greater use of gas.

For house heating, water heating, auxiliary space heating, refrigeration, laundry equipment, refuse burning and lighting, gas, used through appliances of proven efficiency, is now, more than ever, the biggest single factor for making the home enjoyable. Also in schools, hospitals, office buildings, lofts, manufacturing buildings, etc., the innumerable uses to which gas can be applied wherever heat is required, make it imperative that the means of using gas be provided in the modern building. The fact that industrial rates are in effect in some sections adds strength to this argument.

The result of a campaign to interest the architect and the builder in the matter of adequate gas piping and additional outlets will reflect itself in the establishment of better relations with the public. Our representatives will be more cordially received by the architect and the builder, because we are rendering a valuable service. And last but not least we will build up the gas sales.



How the Steel Pier will look next October when completely closed in.

A. G. A. Window Display Club—February Awards

THE PRIZE window display for the month of February has been awarded to Raymond M. Martin, Supervisor of Appliance Display, the Consolidated Gas Company of New York, whose window is reproduced here.

Besides being very unusual this display was used to stimulate general interest in the utilization of gas. The public was invited to guess the number of bananas hung in the ripening room, being given a ballot on which to record their guess. This ballot was in two parts. The stub retained by the guesser was worded as follows:

"Tear this off and keep for your memorandum. My guess was..... bananas. Date....."

"You have seen how *Gas* is used for ripening bananas. Perhaps you were not aware that *Gas Heat* ripens practically every banana consumed in New York.

"Do you know Gas is used for nearly all cooking and baking operations—for almost an endless variety of manufacturing purposes—for an infinite number of heat treating processes—for anything domestic or commercial?

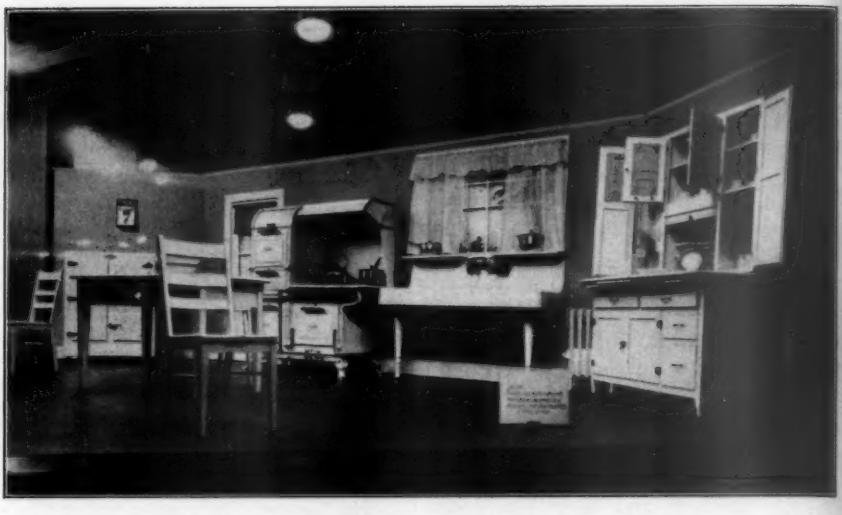
"Have you a problem at home or in business for heating your room—for cooking your meals—for heating your water—for singeing—for shrinking—for melting—etc., etc., etc.

"If you wish, we will send an expert who will give you advice free of charge and frankly tell you if we can save you money—or better your service.

"The Consolidated Gas Company."

The display receiving honorable mention, reproduced below, is by L. C. Heiss, The United Gas Improvement Co., Philadelphia, Pa. Displays of this character are well designed to "glorify" the gas range.

Prize Window for February



Honorable Mention for February

Does Home Service Work Pay?

An increasing number of companies find that it does

THE Home Service Committee of the Commercial Section recently issued a special bulletin to our member companies, copies of which are still available to those who have not seen it.

There can be no question but that an activity of this character has a most direct bearing on the question of public relations and is a helpful instrumentality in the building up of gas sales. It has been the experience of those gas companies, which in an increasing number are taking up this work, that the returns are worth many times the effort.

A well planned and capably operated gas company Home Service Department is a most important factor in the commercial development of that property. Its ramifications as the work develops are widespread.

Our committee is planning to tell the member companies, through the pages of the monthly Sales Service, which will be started with the April 15th issue, just how a Home Service Department should be organized, what should be done and how to do it. The company that has not subscribed for this new service should do so at once. Over 400 companies are on the list of those who will receive and follow the monthly sales plans which will be suggested by our Sales Stimulation Committee.

TECHNICAL SECTION

L. J. WILLIEN, Chairman — GEO. H. WARING, Vice-Chairman

H. W. HARTMAN, Secretary

MANAGING COMMITTEE—1924

ARMBRUSTER, F. C., Shreveport, La. (Southwestern)
BATES, H. E., Chicago, Ill.
BECKJORD, W. C., New York, N. Y.
BROWN, J. A., Jackson, Mich. (Michigan)
BURDICK, R. H., New York, N. Y.
COOK, H. R., Jr., Baltimore, Md.
CORNISH, R. C., Philadelphia, Pa. (Pennsylvania)
EARLE, W. H., Rochester, N. Y. (Empire State G. & E.)
FEUERS, H. C., Sedalia, Mo. (Missouri)
FIELDNER, A. C., Pittsburgh, Pa.
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LYONS, B. F., Beloit, Wis. (Wisconsin)
MORRIS, W. R., Jersey City, N. J.
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PERRY, J. A., Philadelphia, Pa.
PORTER, R. G., Chester, Pa.
PRICHARD, C. R., Lowell, Mass. (N. E. Gas Eng.)
RIEHA, E. L., Baltimore, Md.
SHAUL, C. D., Terre Haute, Ind. (Indiana)
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WEBER, F. C., New York, N. Y.
WHITTAKER, A. D., Atlanta, Ga. (Southern)
YARD, W. S., San Francisco, Calif. (Pacific Coast)

CHAIRMEN OF SECTIONAL COMMITTEES ORGANIZED TO DATE

Carbonization and Complete Gasification of Coal—E. H. BAUER, Worcester, Mass.
Cast Iron Pipe Standards—WALTON FORSTALL, Philadelphia, Pa.
Condensing and Scrubbing—F. W. STEERE, Detroit, Mich.
Chemical—DR. A. R. POWELL, Chicago, Ill.
Coke—R. L. FLETCHER, Providence, R. I.
Gas Pipe and Meter Deposits—DR. R. L. BROWN, Pittsburgh, Pa.
Distribution—J. D. VON MAUR, Toronto, Can.
Editorial, Revision of Catechism—W. J. SERRILL, Philadelphia, Pa.
Measurement of Large Volumes of Gas—M. E. BENESH, Chicago, Ill.
Nominating—F. C. WEBER, New York, N. Y.
Standardization of Capacities of Consumers Meters—WALTON FORSTALL, Philadelphia, Pa.
Water Gas Operation—J. S. KENNEDY, New York, N. Y.

Welding Cast Iron Pipe at Bartlesville, Okla.

C. M. CARTER, Supt., Gas Dept., Bartlesville Gas & Electric Co., Bartlesville, Oklahoma

IN COURSE of progress of our work here on cast iron piping it was found that the method of jointing lengths was more expensive than was considered economical. We cast about for some other method which would prove satisfactory and had the satisfaction of having help in developing a method which is proving inexpensive and quite satisfactory.

Essentially our new method is a weld, using Tobin or Manganese Bronze as the material for filler and bond. Our practise is to butt two squared-end joints together and braze on with an oxyacetylene torch a collar of the bronze. Experimental data seems to indicate that the optimum dimensions of the collar should be approximately 1.5" broad and 3/16" thick. Wider and thicker means waste of rod and thinner, too much of a decrease in strength of the joint.

A comparison of costs shows for 6" pipe the following figures:

Component	6" Cast Iron Paranite Packed Sleeve	Tobin or Manganese Bronze Weld
Labor charge on installation	$ .45	$ .30
Cost of Cast Iron Sleeve	3.55	
6¼" x 12" Sherardized Bolts	.78	
2 Paranite Gaskets	.80	
Tobin Bronze Filler Rod		.80
Acetylene, Oxygen & Flux Welding Material		.75
Total Cost of Installation	$5.58	$1.85

The weld joint shows, therefore, a very gratifying decrease in cost over the sleeve

type of joint. Our information is that we are quoted some seven cents per foot less on plain end than on bell and spigot pipe. An additional saving is, therefore, applicable to piping laid in this manner.

The following schedule will compare the costs per foot on the two classes of piping. Six-inch pipe is quoted in all cases.

Component	*Bell and Spigot*		*C. I. Sleeve*	*Bronze Weld*
Cost per 1000 ft. 6" C. I. Pipe	$800.00	$780.00	$747.00	$747.00
Cost per 1000 ft. Ditch	250.00	250.00	250.00	250.00
Cost per 1000 ft. Backfill	20.00	20.00	20.00	20.00
Cost of Bell Holes	33.32	26.00	26.00	8.25
Cost per Jointing—Material	283.10	212.80	333.40	94.75
Cost per Jointing—Labor	110.80	82.60	28.15	18.75
Freight on Pipe	203.13	198.25	189.81	189.81
Additional Cost 10.4 Sleeves				69.11
Total Cost per 1000 ft. 6" C. I. Pipe	$1700.35	$1569.65	$1594.36	$1397.67
Laying Length Feet	12.0	16.0	16.0	16.0
No. Bell Holes to Lay 1000 ft.	83.3	62.5	62.5	10.4

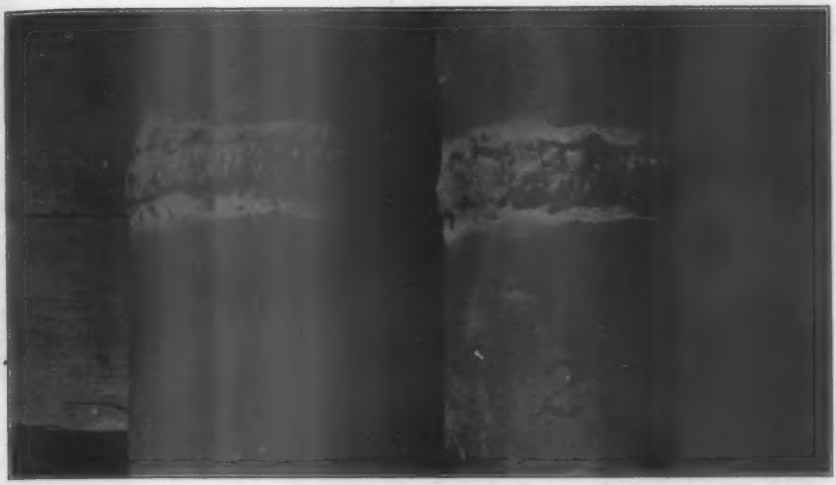
Comments on Difference in Costs

It will be remarked that the price of pipe as quoted above shows a difference of 3.3 cents per foot, while actually we are allowed approximately 7 cents over the bell and spigot type. This is due to the saving to the manufacturer in marketing his pipe with defective bells, hence increasing his plant efficiency. The defective bells are simply cut off and the pipe tested and shipped. The prices quoted above are on a basis of $48.00 per ton f.o.b. Birmingham. The difference in costs of laying noted above are due to the difference in number of bell holes, cost of joint materials and labor. With the bronze joint we have what is virtually 100-foot lengths of pipe to handle, since it is practicable usually to handle six joints brazed together above the ditch, lowered in and connected with sleeves. It is easily practicable to lower this amount of pipe into a ditch without fracture since the strength of the joint proper is as great as that of the cast iron alone.

The development of this joint has been along lines calculated to more generally suit local conditions and existing apparatus, rather than a radical departure from rules of good practise in all respects.

Comment on Weld

As developed, our practice in making these bronze welds indicates that the point is essentially different from an autogenious weld in steel pipe practice. In an autogenious weld the ends of the pipe are beveled, leaving when lined and butted, a "V" shaped chamfer in which the oxyacetylene torch flame is played until the metal begins to flow. At this time the filler rod, of approximately the same composition as the pipe itself, is melted down in a series of ripples. On cooling, the pipe and joint are of nearly the same composition. In case no chamfer is present, the edges of the pipe are melted down until a chamfer is produced. This "V" chamfer must be heated to the bottom to produce a good weld. On the other hand, the practice in the brazed weld is to form a collar 1½" broad and 3/16" high around the juncture of the two pipes, whose squared ends are butted closely together. No attempt is made to heat this point to a flowing temperature to the bottom of the pipe section. Care is taken that no metal flows down between the pipes to form "icicles" of bronze or flux. Usually the speed at which this weld is made precludes the heating of the pipe through its section.



WELD ON 6" CAST IRON PIPE
No. 1—Manganese Bronze
No. 2—Marine or Phosphor Bronze

Filler Rod Composition

Bronzes of the following approximate percentage composition have been experimented with. Both the Tobin and the Manganese Bronzes are suitable for this work.

Component	*Tobin Bronze* I	*Manganese Bronze* II	*Phosphor Bronze* III	*Drawn Bronze* IV
Copper	61.20	57.20	90.00	64.0
Zinc	27.44	40.14	9.8	31.0
Tin	11.40	1.80		3.0
Manganese		0.02		
Phosphorous			0.2	
Lead	0.056	0.20		2.0
Iron	0.038	1.33		
Aluminum		0.10		

Of these four bronzes the Tobin gives us best results as it is a tough, ductile, fine-grained easily handled material. The Manganese Bronze gives us a good bond or braze but is more brittle and more expensive than the Tobin. The Phosphor Bronze has good "sticking" qualities but is too brittle and expensive for use. The Hard Drawn Bronze is least valuable of all. The first three bronzes are obtained in rods 3/16" x 30".

Technic of Weld

Practical experience has developed a technic that gives us a quickly made, strong and resilient joint. Various manners of holding torch, welding speeds, gas flow rates, and points of application of the torch were tried before we finally standardized on the following practice. The two pipe ends, being square, are cleaned of dirt, paint, or chips, butted closely together, and blocked into place. The torch is then played on the top of the two pipes so that a spot extending ¼ inches from the point of contact of the two pipes is heated to dull red heat. The bronze rod is applied with a bead of flux on its end and the bridge made about

WELD ON 6" CAST IRON PIPE

No. 1—Autogenous Weld (preheated and annealed)	**Cost $2.35**
No. 2—Phosphor Bronze Weld Not Preheated	**Cost 2.10**
No. 3—Manganese Bronze Weld Not Preheated	**Cost 1.80**
No. 4—Tobin Bronze Weld Not Preheated	**Cost 1.78**

1" x 1½". The pipe is then turned 180° after cooling enough for the bronze to freeze (a few seconds) and the joint again spotted. The weld is then begun at 90° from the last spot and the torch played on each pipe alternately until sufficient space has been brought up to the proper temperature. The flux-covered rod is then applied so that the heated space is thoroughly "tinned" with the bronze. This wetting action seems to be the keynote of the success of this joint, since this gives us a base on which we can build up almost any thickness of metal for the strength desired. Building up the bronze is left to the force of gravity, the amount melted down from the filler rod in the time it is in the back-lash from the welding flame, and its surface tension-capillary attraction. The pipe is slowly turned toward the torch, the operator meanwhile carrying his wetting action down with him as he goes, so that a steady rate of heating and melting down is carried forward. A nice balance between speed of rotation, rate of gas flow, and depth of collar can be had. Care must be taken that the two pipes, heated alternately, are both brought up to the temperature at which the weld goes best; and that the rod is held over the pipe on which the torch is not played. The heat at this point is sufficient to melt down the flux and rod, but not great enough to boil out the zinc. This method gives us a dense, ductile collar which is stronger than the pipe itself. No pre-heating of this joint is necessary as in C. I. autogenous weld.

Comment on Weld Strength

It is probable that the bronze penetrates the pores of the iron; and the flux floats out some of the graphite inclusions, causing the replacement of the graphite flakes with bronze. This action seems to affect a depth of nearly 1/8 inch. This accounts for the great strength, since a

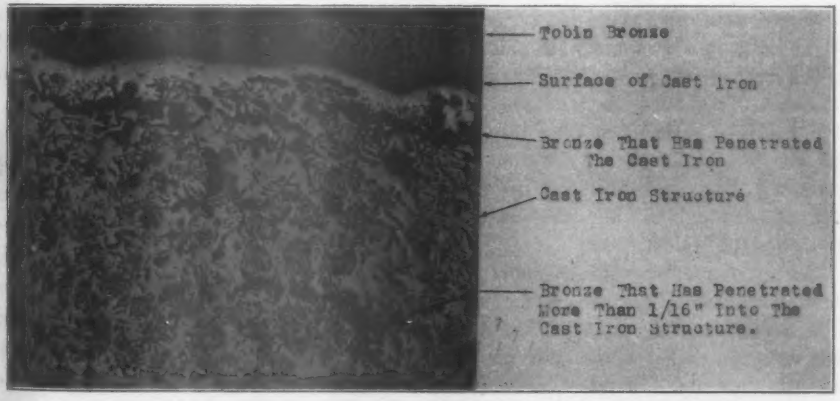
pull in the direction of the length of pipe would cause a resistance in shearing action on these irregular bits of bronze. In all cases where these joints were destroyed for investigation, either the cast iron or, more rarely, the bronze, fractured and did not pull away from the cast iron. The bronze may be peeled off the cast, but in every case, with Tobin Bronze, it carries with it a substantial flake of the cast.

Methods of Testing

Test samples were made up of two series of pipes. Two welds were made up of Tobin Bronze in 3-34" pieces and three made up in four 24" pieces; one of Tobin, one of Manganese Bronze and one of Hard Drawn Bronze. The ends of these two series were chained together and a well-oiled screw jack set so as to push them apart, at a point 100 inches from each end. A deflection from straight at 1-5/16 inches was obtained. No sign of fracture in any of the joints was observed. Further deflection was attempted and at a further rotation of the jack screw by approximately 130,° a fracture occurred in the managese bronze joint. It will be seen that the strain on this joint was greatest. The fracture occurred at a point 180° from the jack, and followed the bronze to the top of the pipe; at which point, the pipe fractured. At no point did the bronze pull away from the cast iron. Enclosed you will find a scheme of the test used with data on joints. While this is not the only test made, the force applied was more easily calculable than by any other method we devised.

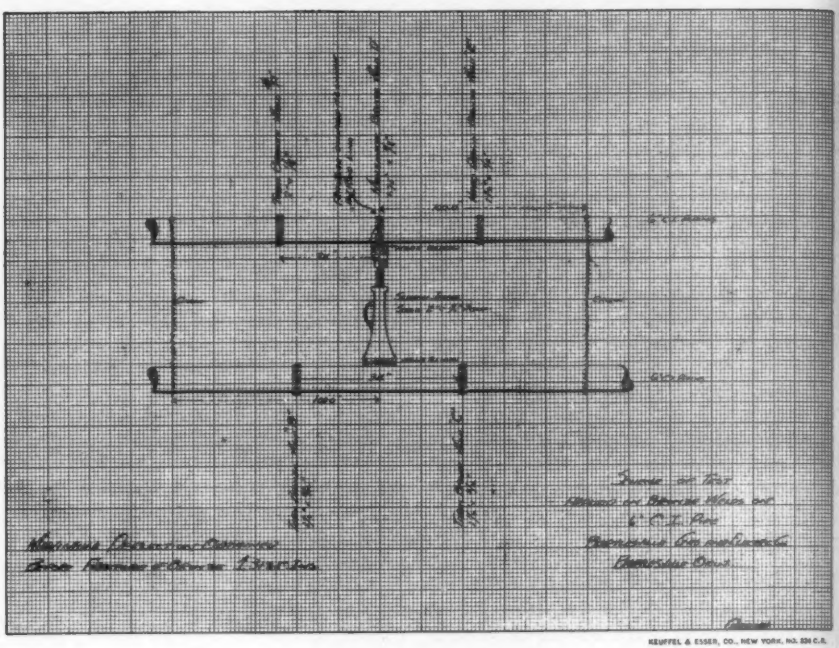
Analysis of Test

As can be seen from the accompanying scheme, the maximum strain occurred in line with the center of the jack on the manganese bronze joint. The efficiency of this jack is about 30% of theoretical as shown by previous tests. We developed approximately 99,000 pounds total on this joint. The area over which this force was applied was about 0.63 inches, so that we developed about 15,-700 pounds per square inch, which seems to indicate sufficient strength to resist nearly any of the ordinary accidents that occur to cast iron pipe.


Tobin Bronze
Surface of Cast Iron
Bronze That Has Penetrated The Cast Iron
Cast Iron Structure
Bronze That Has Penetrated More Than 1/16" Into The Cast Iron Structure.

BRONZE BRAZED JOINT ON CENTRIFUGAL CAST PIPE

View of outside edge. Magnified 35 diameters. Etched with NH_4OH and H_2O



Scheme for testing.

Test on Tobin Bronze Joints

Another test on joint made with Tobin Bronze as a filler gave correspondingly high results except that, in this case, greater ultimate strength and greater deflections were obtained. A permanent slight deflection was noted in this joint as we stopped the test at a deflection of 1.50 inches, removed the jack and found that the pipe came back only to within 0.2 inches of its original position. We assume this to indicate that the metal elongated enough to allow this and is an indication of its ductility.

The accompanying photographs and photomicrographs are self-explanatory.

It would seem from the experimental data obtained that it would be economical to install piping with this joint, using our development in C.I. sleeves with sherardized bolts, each 12 joints or 200 feet and logically expect it to last as long as any type of construction that uses a piping made up of cast iron. A variant of this method might be to use flanged joints with which to connect one series of brazed joints. This procedure would entail the installation of some expansion joint on very long lines of piping.

While it is perfectly possible to make this joint in the ditch it is probably more economical, in our practice, to make them above ground, so save the labor of digging frequent bell holes in which to weld. It is also possible to make joints between the ends of the series of already made up joints. This procedure necessitates the use of some mask to protect the welder from fumes from the bronze.

Coke Chats

BULLETINS 1 and 2 of the "Coke Chats" are the first of a series of bulletins which are being distributed to our company members by the Coke Committee in an effort to impress gas company operators with the value of their coke for the domestic and industrial market. We print below a comment received from one of our members. Mr. R. L. Fletcher, chairman of the Coke Committee, would appreciate receiving your comments.

"Gentlemen:

"Your bulletin delights me, especially the 'Cokeisms' on the reverse side of the sheet.*****

COKE CHATS

Bulletin One

THE HISTORY of the development of the gas industry in our country is a romance of man overcoming obstacles and grasping opportunities for the benefit and welfare of mankind. Wonderful as the development and great as the opportunities were, probably at no time was the industry faced with a greater and more substantial era of gas consumption than today.

This means a corresponding increase in the erection of gas producing equipment. Gradually each gas company will be confronted with the problem of deciding whether to meet the increased demands by the erection of a coal gas plant or by another type of plant. Thus, the question of the possibilities and the potential market of coke is common to all.

The future depends upon the present. Today the producer of coke has perhaps a greater opportunity than ever before of creating and maintaining a sound, healthy and profitable market an opportunity to definitely take coke out of the so-called substitute class and place it on its merits as a better, cleaner, more efficient fuel than anthracite or bituminous coal.

This is only possible through the proper manufacture, preparation and sale of the product. Whether or not the gas industry as a whole recognizes these points and the possibilities of coke is, of course, open to question. Certainly, there is need for more publicity and information among ourselves as to what the other fellow is doing and what methods can be practiced to improve the product.

With this object in view, the Coke Committee of the American Gas Association will issue periodically, and through the Association, a series of bulletins dealing with these and other points.

COKE COMMITTEE,
AMERICAN GAS ASSOCIATION

Bulletin No 1

Bulletin No. 1.

"I desire to make the suggestion that you keep on pounding on the lines of the last Cokeism, namely, 'Your company may not manufacture coke at the present time—it may sometime in the future.' This should be a reason for the use of coke for water gas making in every plant in the United States. For people in the gas business making only water gas to patronize the anthracite companies instead of supporting the gas industry by using coke is both a waste of money by increased expense of water gas fuel and a short-sighted policy. It would seem almost beyond argument that the trend of the gas business is toward more coal gas and that in time every works of any size will be compelled to make coke and to market it. Those who are not already doing so should put their house in order by doing everything that they can to help the coke business in which they are

COKE CHATS

Coke Policy

A WONDERFUL market for coke lies in the localities now dominated by anthracite coal. To replace anthracite, coke must either possess qualities which make it superior or else its sale price must be considerably lower.

Generally speaking, the coke-producing gas companies have been content to prepare their product as *cheaply* as possible and market it at reasonably low prices. Due to the economy practiced in the preparation of the coke and sometimes due to *high moisture content*, these companies have been able to show satisfactory net returns on the sale of coke.

Can a company following this practice maintain its market as competition becomes keener (without material reductions in selling price)? Can it increase the demand for coke in the future when the size of the plant is increased?

For successful merchandising, a commodity must have advantages other than relatively low *price*—it must have *quality*. Coke with the following qualities is superior to any other commercial solid fuel:

Low ash content
Low moisture content
Uniformly sized and free from breeze
High fusing temperature ash

Such a coke can stand the test of competition with anthracite, irrespective of price. Its possible market is limited only by the total demand for anthracite.

Practically *every* gas company is either an actual or prospective manufacturer of coke. Every company, therefore, should be interested in developing or extending its coke market.

COKE COMMITTEE,
AMERICAN GAS ASSOCIATION

Bulletin No. 2

Bulletin No. 2

almost certain within a few years to become a factor."

Yours truly,

(Signed) J. A. Norcross,
Treasurer.

The "Cokeisms" on the reverse side of bulletin No. 1 are as follows:

Whether coke is to remain a residue of the gas industry or become a finished product, with a character and reputation, depends upon the attitude of the gas managers and engineers of today.

If Henry Ford was in the gas business, could you imagine him selling coke as a substitute fuel or as a by-product of the coal gas industry?

A gas company that cannot sell coke to its employees should not attempt to sell the public.

A gas company that sells coke under what can be considered a fair price does so at the expense of its gas consumers.

A satisfied coke customer is a friend of the "GAS" Company.

Coke is man-made anthracite—the solid fuel of the future. Believe in it, use it, and boost it.

Your company may not manufacture coke at the present time—it may sometime in the future. Interest yourself in coke; study its possibilities and its value as a fuel.

The "Cokeisms" on the reverse side of bulletin No. 2, read:

A sound, progressive coke policy is comparable to the rock foundation of a lighthouse.

The reputation of a product is determined by its quality.

It is not a progressive company that adopts a coke policy of *"S'en fait rien."* (It doesn't matter.)

Coke cheaply prepared and sold low in price is considered a cheap product.

Good clothes help make the man—clean coke the company.

"Water" is cheaper by the *gallon* than by the *ton.*

A man's reputation is affected by his associates—a company's by its products.

Your company may not manufacture coke at the present time—it may sometime in the future. Interest yourself in coke; study its possibilities and its value as a fuel.

An Effective "Ad" of Our Slogan

Employment Bureau

SERVICES REQUIRED

Wanted by a gas and electric company, young man to do office work who has had experience in ledger work, general routine work, and especially on the complaint or service desk. In reply, please give outline of experience, references and salary expected. Address:
Key No. 022.

WATER HEATER SALESMEN WANTED—A large gas company needs several good water heater salesmen to work on commission basis in Western Pennsylvania. Exceptionally good territory.
Key No. 026.

WANTED—Foreman for main laying gang. Must be experienced in laying 4" to 12" cast iron main and able to handle main repair work on low and medium pressure lines. Location, New Jersey Coast. State age, experience and wages expected. Address A. G. A.
Key No. 031.

WANTED—Company operating several gas properties in Middle West can use three experienced industrial gas men. Address A. G. A.
Key No. 037.

WANTED—Young man with practical experience in gas distribution for the position of Assistant Superintendent of Gas Distribution in a rapidly growing southern city. Gas output more than a billion cubic feet per year. Give education, experience and salary expected in first letter. Address A. G. A.
Key No. 038.

WANTED—Two experienced salesmen, to specialize on the sale of gas boilers for house heating and industrial uses, by a gas company desirous of increasing its present gas boiler load. Give details of experience and results obtained.—Address A. G. A.
Key No. 039.

DIRECTOR OF STORES DEPARTMENTS WANTED.—Must be familiar with best practice in handling Materials & Supplies, and be capable of directing other employees. Company is a combined Gas, Electric Light and Power, and Electric Railway Company, operating in a number of cities in the middle west. In application give age, education, experience, salary expected, etc. Application will be treated as strictly confidential, and handled only by an official. To enable us to form some idea of ability and mental capacity include in application your idea of how Stores Departments of such a Company, operating over considerable territory, should be handled, and what Director's duties and responsibilities should be. Address A. G. A.
Key No. 040.

APPLIANCE SALESMEN—Calling on Gas Companies to sell tank water heaters as a side line on commission basis. State Territory, references and experience. Address A. G. A.
Key No. 042.

SERVICES OFFERED

POSITION WANTED—By-Product, Coke-Oven Executive seeks more responsible connection. Fitted for Chief Chemical Engineer. Assistant-Superintendent or Assistant to Manager. University Graduate. Alexander Hamilton Institute Graduate. Nearly seven years with present 3000 ton plant. Thirty-two years old. Married. Address A. G. A.
Key No. 151.

WANTED—Position of responsibility as Manager or Industrial Fuel Engineer—18 years' varied experience in the gas business. References and service record furnished. Address A. G. A.
Key No. 142.

WANTED—Position as manager of small gas plant (about 10,000 meters) or sales manager of larger plant. Can furnish the very best reference.
Key No. 158.

ENG.-SUPT. of one of the largest gas plants in the country would consider change. Desires to locate with company in which opportunities for future advancement are better than in present position. Is a married man. Has technical University training. No particular preference as to location. Address A. G. A.
Key No. 159.

WANTED—Am open for position as general superintendent, engineer or manager of fair sized property. Fifteen years' experience in combination coal and water gas plants. Experience covers vertical and horizontal coal gas installations, also distribution work. At present am managing plant of five million sendout and have been acting in capacity of assistant engineer. Can furnish excellent credentials from present and past employers. Married. Can report with reasonable notice. Address A. G. A. Monthly.
Key No. 164.

AVAILABLE—Man of executive ability, experienced in all phases of the gas business and sales and advertising work including agency work on National accounts. Capable of creating, planning and following through all forms of advertising. Prefer locating in West or South Atlantic states. Minimum salary of $4,000. Address A. G. A.
Key No. 167.

WANTED—Superintendent of Distribution seeks similar position high or low pressure. 14 years' experience covering all branches of the work, office, field, and shops. Speaks and writes Spanish. Southern part of U. S. or Latin America preferred but not essential. Address A. G. A.
Key No. 169.

AM OPEN FOR A POSITION of greater responsibility. At present, manager of gas company with over 5,000 meters. Technical training started in as cadet engineer with one of largest operating companies in U. S. Have eleven years' experience in engineering, construction, distribution and manufacturing, and over four years in commercial, new business and financial as manager. Prefer manager's position in good sized city. Age 40 years and married. Address A. G. A.
Key No. 170.

GAS ENGINEER—Eighteen years' experience in design, construction and operation of gas plants, all departments, manufacture and distribution, also electrical experience in combination plants desires position of responsibility with progressive company. Past six years chief engineer with large gas company. Address A. G. A.
Key No. 171.

EXECUTIVE, with fifteen years' experience in coke oven practice on plants manufacturing surplus gas for city consumption, desires connection with growing public utility either as executive or position leading to same. College graduate, good personality, married. Available on reasonable notice. Address A. G. A.
Key No. 172.

GAS ENGINEER—18 years' experience with 3 largest gas companies in the country, am open for engagement as gas engineer, general superintendent, manager or sales engineer. Excellent references. Address A. G. A.
Key No. 173.

ENGINEER—Twenty-one years' experience in Gas and Electric production and distribution, wishes an opening with a larger gas company or a combination gas and electric company. Eleven years with the United Gas Improvement Co. Highest reference from present connection. Address A. G. A.
Key No. 174.

WANTED: A position as General Manager or Engineer of Gas Property. Have had experience and can produce results in either large or small properties. Can give exceptional references on past record. Address A. G. A.
Key No. 175.

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